Infectious Disease

Version 5.3

PLAB 1 Keys is for PLAB-1 and UKMLA-AKT (Based on the New MLA Content-Map)

Corrected, Updated, Lighter

With the Most Recent Recalls and the UK Guidelines

ATTENTION: This file will be updated online on our website frequently!

(example: Version 2.1 is more recent than Version 2, and so on)

Key 1	**Commonly Asked Antibiotic Treatment (Important)**

Do not worry if you cannot memorise these at once as all of them will come across while studying the full notes of all chapters.

Respiratory Conditions	
Community Acquired Pneumonia (Mild)	Amoxicillin
Community Acquired Pneumonia (Moderate)	Amoxicillin + Clarithromycin
Community Acquired Pneumonia (Severe)	Co-amoxiclav + Clarithromycin Co-amoxiclav = Amoxicillin + clavulanic acid e.g. Augmentin®
Pneumonia caused by staphylococcus aureus	Flucloxacillin
Pneumocystis Jirovecii "P. Carinii" (Seen in HIV patients when CD4 count is < 200 cells/microL).	Co-Trimoxazole = (Trimethoprim + Sulfamethoxazole) = Bactrim®
Tuberculosis (TB)	√ **First 2 months** → (**Ripe**) → **R**ifampicin, **I**soniazid, **P**yrazinamide, **E**thambutol. √ **The following 4 months** (**Ri**) → **R**ifampicin, **I**soniazid.

Aspiration Pneumonia	Amoxicillin + Metronidazole
CNS (Meningitis)	
Out-of-hospital Meningitis (GP clinic)	IV or IM Benzylpenicillin
In-hospital meningitis (most types)	Ceftriaxone If > 60 YO: IV ceftriaxone + amoxicillin
Listeria Meningitis	Ceftriaxone + Ampicillin + Gentamicin
Cryptococcal Meningitis	Amphotericin B
Meningitis Prophylaxis "for contacts"	√ Ciprofloxacin "preferred" or: √ Rifampicin
Genitourinary Conditions	
Lower uncomplicated UTI (in a non-pregnant ♀)	Trimethoprim or Nitrofurantoin
Candida albicans (Vulvovaginal Candidiasis)	Clotrimazole or Fluconazole
Trichomonas Vaginalis	Metronidazole
• **Bacterial Vaginosis** = (Gardnerella Vaginalis)	Metronidazole

Cervicitis (Chlamydia)	**Recent Guidelines for the management of Cervicitis (September 2019)** **Chlamydia** ◙ 1st line → Doxycycline 100 mg BID for 7 Days. ◙ Another line: Azithromycin 1-gram PO Followed by 500 mg PO OD for 2 days.
Cervicitis (N. Gonorrhea)	**Neisseria gonorrhoea** ◙ Ceftriaxone 1 gm IM (single dose). Or: ◙ Ciprofloxacin 500 mg PO (Single dose).
PID "Pelvic Inflammatory Disease"	Differs based on hospital guidelines, one example: (CDM) **Ceftriaxone + Doxycycline + Metronidazole**
Syphilis	Penicillin G
Genital Herpes "HSV"	Aciclovir
GIT Conditions	

Salmonella/ Shigella/ Campylobacter	Erythromycin or Azithromycin or Clarithromycin Or Ciprofloxacin
Clostridium Difficile "Pseudomembranous colitis"	√ Oral Vancomycin "first line" √ Metronidazole "second line"
H. Pylori	OAC Regimen (Triple): √ Omeprazole (PPI) √ Amoxicillin √ Clarithromycin
ENT Conditions	
Acute "bacterial" Otitis Media	Amoxicillin
URTI "Pharyngitis/ Tonsillitis/ Laryngitis"	Phenoxymethylpenicillin
Other Conditions	
Cellulitis Mastitis Diabetic Foot Infection	√ 1st line: **Flucloxacillin** √ If penicillin allergic: **Clarithromycin** or Erythromycin (if pregnant) or Clindamycin. √ If MRSA: **Vancomycin**
Septic arthritis Osteomyelitis	Flucloxacillin + Sodium Fusidate

Scabies	5% Permethrin
Toxoplasmosis	Pyrimethamine + Sulfadiazine

Key 2

Brucellosis

◙ Infectious → Bacteria Brucella.

◙ Common in some areas especially those who have high exposure to animals (e.g. goats, sheep, camels, cattle, buffalos, pigs, dogs).

◙ Examples of Areas → Nigeria, South America, Middle East, Central and South-east Asia, Africa.

◙ **Inhalation**: the most common **mode of transmission** in endemic areas, affecting **farmers**, herdsmen "the owner or keeper of a herd of domesticated animals." (and particularly families where the animals share the same accommodation), laboratory technicians and abattoir workers "slaughterhouses".

◙ **Other modes of transmission include:**

√ Skin (intact or broken) or mucous membrane (conjunctival) contact.

√ Consumption of infected/contaminated food: untreated milk/dairy products (particularly unpasteurised cheeses), raw meat or liver.

◙ The key point is to think of the diagnosis and then take a **travel** and **occupational** history.

◙ Most cases involve exposure to an infected animal e.g. working in a **farm** in an **endemic area**.

◙ The incubation period is typically 5-30 days but can be up to six months or possibly longer.

◙ **Manifestations:**

Brucellosis may be asymptomatic. Symptoms are generally nonspecific. Symptoms may appear suddenly over 1-2 days or gradually over seven days or more. In a study of 84 patients:

√ Fever was observed in 73% of patients. It is a differential in pyrexia of unknown origin (PUO). Classically undulant but other patterns occur.

√ Arthritis/arthralgia (in 64%).

√ Other symptoms can include malaise, back pain, headaches, loss of appetite, weight loss (in chronic infection), constipation, abdominal pain, sleep disturbances, cough, testicular pain, and skin rash (less common).

√ In around a quarter of patients: looks ill, pallor, lymphadenopathy, splenomegaly, hepatomegaly, epididymo-orchitis, skin rash.

	◙ **Dx:** √ Initial → Rose Bengal test OR Serum agglutination test. √ Gold standard → Isolation of Brucella spp from a specimen. ◙ **Rx** → Doxycycline + Rifampicin for 6 weeks. ◙ **Example Scenario:** **A 30 YO man who went to work in a farm in South America returned to the UK. He Developed 8 weeks history of night sweat, fever, arthralgia, weight loss and splenomegaly. Temp: 38°c** The likely Dx → **Brucellosis**
Key 3	**Streptococcus Pneumoniae** • **Gram POSITIVE Diplococci**. • The **commonest** cause of Pneumonia.

- **Typical Pneumonia features**:

√ Productive cough. **√** Fever. **√** Chest tightness.

√ Unilateral Basal Crackles (on Auscultation.)

√ Unilateral Lobar Consolidation (on X-ray).

√ Vey Important → Association with **Herpes Labialis**.

Key 4

◙ Pneumonia Types Clinchers ◙

Mycoplasma Pneumonia	• Flu-like symptoms • **Erythema Multiforme**. **(Mycoplasma → Erythema multiforme)** ◙ Patchy consolidation often of 1 lower lobe.
Pneumocystis jirovecii (or: Pneumocystis Carinii) "a yeast-like fungus"	• Immunocompromised (**HIV** with **CD4 < 200**) • Exertional Dyspnea. • **Dry Cough**. • Bilateral consolidation.
Staphylococcus Aureus	• Usually in a patient with **influenza** infection (**Initially flu-like** symptoms then pneumonia). • Also common in **IV drug abusers** and elderly. ◙ Chest X-ray: Cavitation.

Legionella	• Hx of contamination with **water**. ◙ Bi-basal Consolidation
StreptococcaL **(Pneumococcal)** (The commonest cause of pneumonia)	• TypicaL features of community acquired pneumonia; (productive cough/ fever/ unilateral basal crackles and consolidation) • Association with Herpes Labialis. ◙ Lobar Consolidation.

Klebsiella → Cavitating pneumonia particularly of **upper lobes**.

It is Very difficult to differentiate the types of pneumonia clinically. However, try to memorise the next links as they usually (but not always) work and sometimes are given as hints:

- **Herpes Labialis** → **Streptococcal** (Pneumococcal).
- **Erythema Multiforme** → **Mycoplasma**
- **HIV** with **CD4 < 200** → **Pneumocystis Jirovecii** (Carinii)
- Pneumonia developed **after influenza** (**Flu**) → **Staph**. **Aureus**.
- Pneumonia after Hx of **Exposure to Water** → **Legionella**.

- ***Important Note,***

	Sometimes a question may try to trick you into choosing (P. jirovecii) by giving a Hx of HIV-Positive patient, be careful! HIV is a risk factor for both **P. jirovecii** and **Streptococcal Pneumonia.** (**Simple Rule**) √ If the **CD 4 < 200** (±) **bilateral consolidation** → **P. jirovecii**. √ If **CD4 > 200** (±) **Lobar pneumonia** → **Streptococcal Pneumonia** (which is the commonest cause of pneumonia). ◙ **Treatment**: • **Most types** → √ amoxicillin (mild), √ amoxicillin + clarithromycin (moderate), √ co-amoxiclav + clarithromycin (severe). • **P. jirovecii** → co-trimoxazole.
Key 5	◙ Hx of travel to/from **India** + Fever, Cough, Cervical Lymphadenopathy, **Caseating Granuloma** in the LNs → **TB "Tuberculous Lymphadenitis".**

A quick Recap:

- **TB** → Caseating Granuloma.
- **Sarcoidosis** → Non-Caseating Granuloma.
- **Crohn's Disease** → Non-Caseating Granuloma.

◙ Fever, Cough, Cervical Lymphadenopathy, **Hoarseness, Dysphagia, Weight loss, IV drug user, low socioeconomic**

→ **TB "Laryngeal TB"**

IV drug users and low socioeconomic class are risk factors for TB.

Key 6

Linear tracks on skin (**Burrows**) + **Severe Pruritus** (itching), specially at the skin fold "flexures" of → *wrists*, *finger webs*, *elbows*, *axilla*, areola, genitalia.

◙ Dx → **Scabies.**

◙ Organism → **Sarcoptes Scabiei**

(parasite → skin infestation)

	◙ Mode of transmission → **Skin-to-skin contact** ◙ Mechanism of Pruritus → **Allergic Reaction** (Not infection)! Important √ ◙ First line treatment → **Permethrin 5%** (not 0.5%). ◙ Second line treatment → Malathion 0.5%. ♦ Usual hint → **Nursing Home Resident** ♦
Key 7	**Infectious Mononucleosis (IMN)** ◙ The other name for (IMN) → **Glandular Fever**. "important √" ◙ The causative organism → **Epstein-Barr Virus** (**EBV**), also called (Human Herpesvirus 4; HHV-4). ◙ Presents with → **Sore throat**, **Exudative tonsillar enlargement**, **Tonsillar membranes**, fever, malaise, **lymphadenopathy** "especially **cervical**" ± Splenomegaly ± **Palatal petechiae** ± Jaundice

◙ **Important Hint** → Receiving **Ampicillin**/ **Amoxicillin** leads to a development of → **Pruritic maculopapular rash**.

◙ **Another hint** → having sore throat and fever a few days ago.

You might even get asked about the drug that has led to rash development!

The answer would be either **Ampicillin** or **Amoxicillin**.

◙ Dx → **Heterophil antibody test** = **Monospot test** = **Paul Bunnel**

◙ FBC → ↑ WBCs, ↑ ESR, Lymphocytosis, Atypical Lymphocytes > 20%

◙ Rx → **Supportive** "simple analgesics for any pain and fever"

Key 8

Tuberculosis (TB)

◙ **Organism** → **Mycobacterium Tuberculosis** (**Acid Fast Bacilli**)

◙ **Features** → ***Chronic Productive Cough*** / ***Hemoptysis*** / ***Weight loss*** (***Cachexia***) / ***Fatigue*** / ***Night sweats***.

◙ Small areas of **Caseating granulomas** (**Ghon focus**)

◙ **Chest X-ray** → **Upper lobe consolidation/ infiltrates with cavitation**.

◙ **Risk Factors** → **Homeless / Drug Abuser / Smoker / Low Socioeconomic class.**

◙ **Dx**

√ First line → **Sputum for Acid-Fast Bacilli (AFB)**.

√ If No Sputum on cough? → **Bronchoalveolar Lavage**.

√ If bronchoalveolar lavage is refused by the patient? → **Gastric Lavage**

(The patient might swallow sputum while sleeping and thus gastric lavage could help obtain a sputum sample to be tested for AFB).

◙ **Screening for contacts** **"for latent not acute TB":**

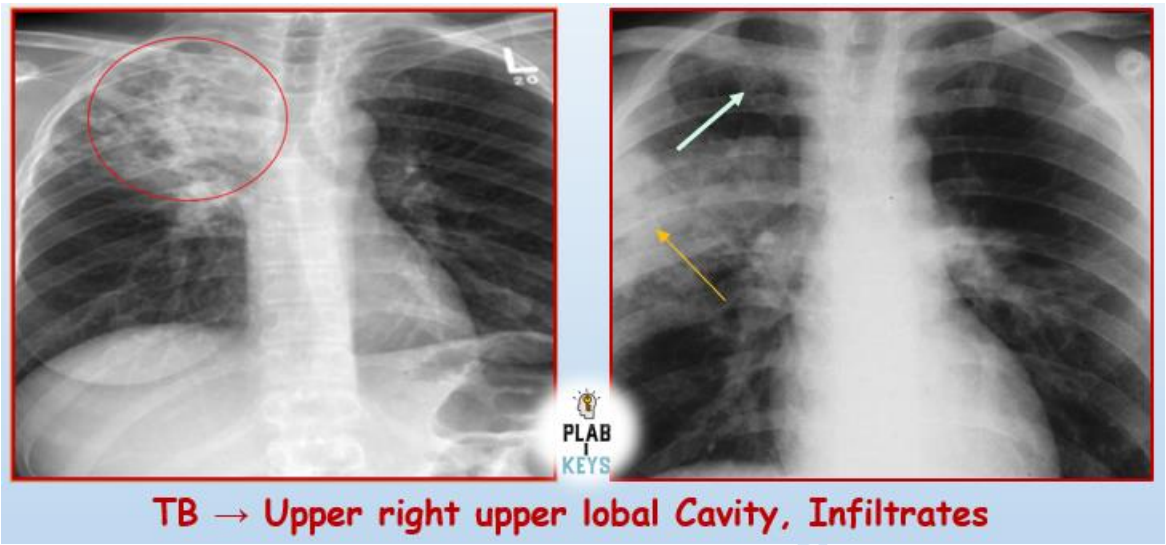
√ **Mantoux test** → If contacts have **not** had BCG vaccine before.

√ **Interferon Gamma test** → If contacts have had BCG vaccine before.

◙ **Treatment** (6 months plan)

√ **First 2 months** → (**Ripe**) → **R**ifampicin, **I**soniazid, **P**yrazinamide, **E**thambutol.

√ **The next 4 months** (**Ri**) → **R**ifampicin, **I**soniazid.



Important:

◙ **NOT** all TB patients are safe to be managed as outpatients; there are certain groups need to follow a strategy called:

→ **Directly-Observed Therapy (DOT)**. ***Imp √***

◙ **DOR** strategy requires volunteers, healthcare workers or family members to observe and record patients taking TB medications doses.

◙ **DOT** is run for the following "**under-served groups**" of patients:

√ **Homeless**. √ Imprisoned. √ Drug or alcohol misuse.

√ Those who have not been adherent to therapy in the past.

√ Those who are too ill to adhere to therapy.

✓ Those who have multidrug-resistant TB.

In patients with known or suspected cases of TB, they need to be isolated in a Negative pressure room = Admit the patient to hospital in respiratory isolation and initiate contact tracing. *Imp √*

The full TB treatment is 6 months. After 2 weeks of isolation and TB antibiotics treatment, the patient becomes no longer infectious. Thus, he can be discharged with directly observed therapy (DOT) in place.

So, be mindful of the following note:

• The TB treatment course is 6 months.

• The patients are usually admitted and isolated in a negative-pressure room for 2 weeks where they take TB medications.

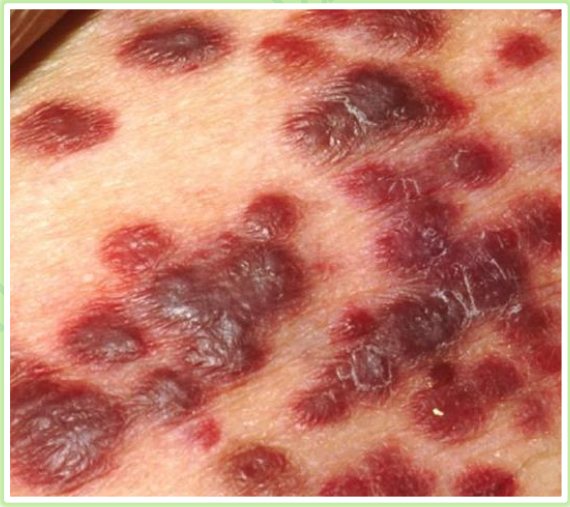
• After that, they become non-infectious and thus they get discharged and continue treatment as outpatients.

• **Important**: If they are **homeless**, **imprisoned, non-adherent to treatment before or too weak or ill to be adherent to therapy, drug or alcohol misusers,** or any of the (**DOT Strategy**) categories, they get discharged with **directly-observed therapy DOT** in place. √.

• Additional Points in favour of TB:

√ Hx of travel to or from South Asia or Sub-Saharan Africa, India.

	√ the Palpable LNs are initially **tender** and **firm** and discrete. √ There is usually **Chronic Productive Cough ± Bloodstained sputum**. √ ± **Erythema Nodosum**. ◙ **NOTE that** although **Toxoplasmosis** can present with Splenomegaly and cervical lymphadenopathy, **weight loss** is usually **not** seen in Toxoplasmosis.
Key 9	In the UK, **Gastroenteritis** patients should be safe to return to work after 2 days (**48 hours**) of the **last** episode of symptoms (Diarrhea or Vomiting).
Key 10	• Otitis Media can cause Meningitis. • Meningitis can cause **Hearing Loss** "**deafness**". "*One of the delayed complications of bacterial **meningitis** is **hearing loss***". **Important**: **√** After treating meningitis → Arrange **Hearing Test**!
Key 11	**Kaposi Sarcoma** √ Cancer of Connective Tissue (Blood vessels ↑ in size resulting in

	→ red, purple, brown or black nodules or papules that are usually non-painful). √ RFs (Hints) → **AIDS** patients / **Homosexual** or **Bisexual** / **Jewish** or **Mediterranean**. √ The commonest sites → mouth, nose and throat. √They can also grow internally (e.g. lungs, GIT). ◙ **For the Exam**: **Homosexual** or Jewish man, Multiple **purple nodular** lesions on face and trunk, they are **not painful** or itchy.  **Kaposi Sarcoma**
Key 12	**Chicken Pox** → Varicella Zoster Virus.

♦ **Very contagious** (**Mainly** → via **Respiratory** "**Airborne**" route) **(√)**

However, the Varicella zoster can also be transmitted via direct contact with the vesicles.

Once the vesicles are dried and crusted → no transmission.

♦ **Infectivity:** **1-2 days Before** the rash appears, and **5 days After** the rash first appeared (infectivity **stops when the rash dries and crusts**).

♦ **Presentation:**

√ **Fever** (38-39 C).

√ **Pruritic** "itchy" Rash: **macules** → **papules** → **vesicles** → and then **dry crusts**, starting on the face and spreading mainly on chest and back.

Q) When can a child with chicken pox return to a school?

A) **After the rash and vesicles are dried and crusted** (Usually **around 5 days** after the onset of the rash).

◙ Management of chicken pox "Important" √

• Generally, in a healthy child < 12 YO → **Reassurance** + **Supportive measures** such as paracetamol for fever and sedating antihistamines and calamine lotion for itching [Self-Limiting Disease].

HOWEVER:

• If **superimposed bacterial infection** is suspected (eg, **discharging pustules**, **redness around the vesicles**, **pinkish fluid secreted** from the lesions ± **High Fever**)

→ Give **Oral Antibiotics**. (Previously asked)!

Chicken Pox Exposure (Contact) in Pregnancy/ and Immunocompromised patients

• When to give Varicella-Zoster Immunoglobulin (VZIG)?

VZIG is almost never used now (not recommended since the latest update)

unless for **neonates** exposed to chickenpox 7 days before or after delivery.

• When to give oral Acyclovir? In the following cases:

1 Immunocompromised patients **who develop** Chickenpox rash.

2 Pregnant ♀ **who develop** Chicken Pox rash. (If severe rash → IV aciclovir).

3 Immunocompromised patients **who are exposed (get in contact with) a person with chicken pox but in 2 conditions:**

1) If the exposure happened within the infectivity period (ie, 2 days before the appearance of the rash on the person up until 5 days after rash appearance).

2) If their immunity to varicella is unknown or negative. Ie, if their serology for varicella zoster immunity is negative. (If it is negative, this means they are not immune to chicken pox).

4 ◙ Pregnant ♀ who get in contact with (ie, exposed to) a person with chicken pox but in 2 conditions:

1) If the contact happened within the infectivity period (ie, 2 days before the appearance of the rash on the person up until 5 days after rash appearance).

2) If their immunity to varicella is unknown or negative. Ie, if they have not had varicella (chicken pox) before, or their serology for varicella zoster is negative. (If it is negative, this means they are not immune to chicken pox).

Notes:

- Oral Aciclovir is effective if given up to 14 days after contact.
- The infectious period of Varicella Zoster is 2 days before rash appearance till 5 days after rash or when vesicles dried out and crusted.
- Incubation period of VZ can be up to 21 days after exposure.

The Steps:

Pregnant women or Immunocompromised Patients Exposed (came in contact with) a Person who Has Chicken Pox + There is no rash appeared on them yet:

[Step 1]: Check the Time of Exposure:

Check if the exposure (contact) occurred within the **infectious period** (2 days before rash till 5 days after the rash appearance). We mean the rash appearance on the contact, not the pregnant or the immunocompromised.

These both if the rash appeared on them, we directly start oral aciclovir (or IV aciclovir if severe).

- If yes, the exposure was within the infectious period → go for step 2.

- If no, the exposure was **not** within the infectious period → Reassure.

[Step 2]: Checking Immunity to Varicella Zoster:

Perform **serum antibodies for varicella** zoster (this step is omitted if the pregnant woman has had chicken pox in the past, she is immune → reassure).

TAKE CARE, in the immunocompromised people (eg, Chemotherapy, DM, Chronic corticosteroids, Cancer, Heavy smokers), we perform serology for varicella immunity REGARDLESS of chicken pox history, ie, even if they had chicken pox in the past, we still perform VZ serology.

On the other hand, in the exposed pregnant, if there was a history of chicken pox, reassure, if no or unsure → perform VZ serology.

[Step 3]: Decide

- If within infectious period + VZ serology is -ve (not immune) → oral aciclovir.

- If the serology is +ve (VZ antibodies detected) (immune) → Reassure.

Based on the New 2022 guidelines:

• Instead of ~~Varicella-zoster Immunoglobulins (VZIG)~~,

Now, **Oral Aciclovir** is given to **Immunocompromised** individuals who have significant exposure to chicken pox or shingles and their VZ serology for immunity is negative (regardless of the chicken pox Hx).

Immunocompromised patients Examples:

Heavy smokers, DM, Cancer, Chemotherapy, Corticosteroids users.

• **Oral aciclovir** is also given to **pregnant women** who came in contact with chicken pox patients if they are not immune (ie, no history of getting chicken pox and the serology for VZV IgG is negative ie, not immune).

Scenario (1):

An elderly ♀ on chemotherapy for breast cancer and on steroids for RA presents to inquire about the management for her condition. She says that her grandson has chickenpox, and she is in contact with him. What should be done?

Give → **Aciclovir**.

She is **immunocompromised** (Chemotherapy + Steroids) with **exposure** (She did not develop the disease).

Chicken Pox (Varicella Zoster)

Scenario (2):

A 15-year-old boy has macules, papules and vesicles mainly on his trunk for 3 days now. There is erythema (redness) and tenderness surrounding these lesions. Some of the vesicles are secreting pinkish fluids. His body temperature is 39.3. What medication class is important in this case?

Give → **Antibiotics**.

- This is a case of chicken pox which is usually self-limiting and requires only supportive management (eg, paracetamol, antihistamine for itching).
- However, there is **superadded bacterial infection** here (**erythema and tenderness surrounding the lesions + pinkish fluid secreted from some vesicles + high fever**).

◘ These signs indicate **superadded infection** and thus give → **Antibiotics**.

Scenario (3):

A pregnant in the 2nd trimester was in significant contact with a child with chickenpox 7 days ago. The child developed chicken pox rash the following day after he met her. She has never had Varicella zoster infection. A stored blood sample is tested negative (not detected antibodies) for varicella zoster virus IgG. Now, she has no rash. What is the most appropriate management?

The best management → **Oral Acyclovir.**

- **Was the exposure within the infectious period?**

Yes, he developed the rash the following day after meeting her, this means he was infectious (2 days before rash until 5 days after rash).

- **Is she immune to VZ?**

No, she has no history of chicken pox + Her serology for VZ is negative

→ Give oral aciclovir.

If any of the above 2 points was a (NO), → Reassure.

In the past, the answer to this question was to give varicella zoster immunoglobulin (VZIG). This has changed in 2022.

Now, for pregnant women who get in contact with a person with chickenpox, we break it down:

If the contact was within the period of infectivity (ie, 2 days before rash appearance up until 5 days after the rash appearance in the contact) and the immunity status to VZ is negative, → Give **oral aciclovir**.

More Elaboration:

• If she has never had Chicken pox (she is not immune to it) or if the immunity status is unknown, next step → **Check serum Varicella zoster Ab (IgG).**

→ **If +ve (immune)** → **Reassure** (as she is immune).

→ **If -ve (not immune)** → Give **Oral Aciclovir**.

• Aciclovir is effective if given within 14 days after exposure.

• If she develops **rash** → Give **Oral Acyclovir** within 24 hours (IV if severe).

• If the serum varicella zoster virus IgG had come back **Positive** (**immune**)

→ the answer would have been: **Reassure**.

Scenario (4):

What if she was in contact with someone 8 days ago. And after these 8 days have passed, he developed chickenpox rash?

→ **Reassure**

(The infective period of chickenpox is 2 days before the appearance of the rash up until 5 days after rash appearance. Here, 8 days have passed and then he developed the rash. So, when she was in contact with him, he wasn't infectious).

Key 13

Lyme Disease (Lyme Borreliosis)

◙ **Hx of Camping or Walking in gardens/ jungles.**

◙ **Erythema Migrans** (erythematous, painless, non or mildly itchy)

± (fever, headache, myalgia, general aches and pains)

◙ **Later On (Possible)** → Facial Paralysis, Meningitis, AV-heart block, Myocarditis, Arthritis.

It might present as **annular rash with scaly edges** (e.g. on the thigh) that's slowly growing with associated **general pains and aches**.

◙ **Diagnosis** → **Antibodies to Borrelia Burgdorferi**.

◙ **Treatment:**

√ Early disease → **Doxycycline** (First-line but **Contraindicated in Pregnancy** → **Amoxicillin** is given instead).

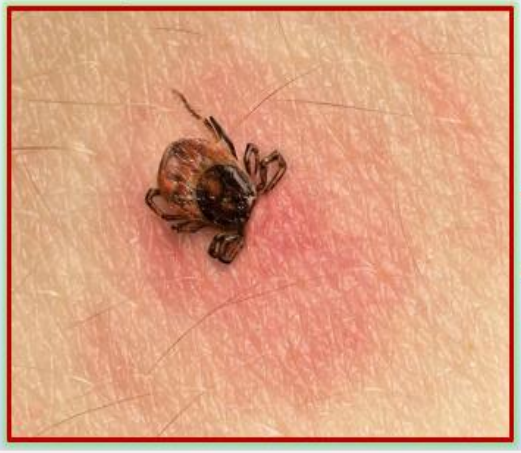
√ Disseminated Disease → **Ceftriaxone**.

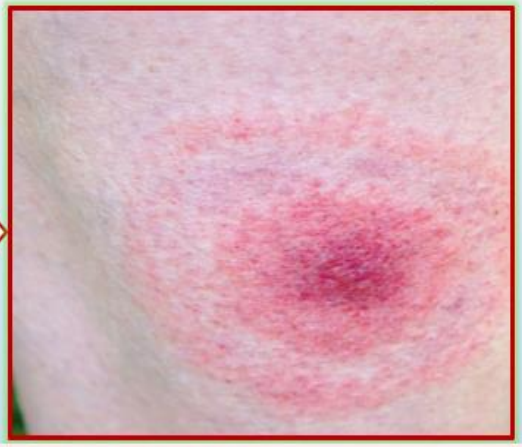
√ **Pregnant** woman → **Amoxicillin**.

"Doxycycline is 1st line Rx in → chlamydial cervicitis – Lyme disease".

Lyme Disease (Lyme Borreliosis)

√ **Hx of Camping or Walking in gardens/ Jungles.**





Ixodes scapularis **Tics** bite skin and → spread **Borrelia Burgdorferi** bacterium.

Erythema Migrans "Non-painful, non-itchy rash enlarging in size"

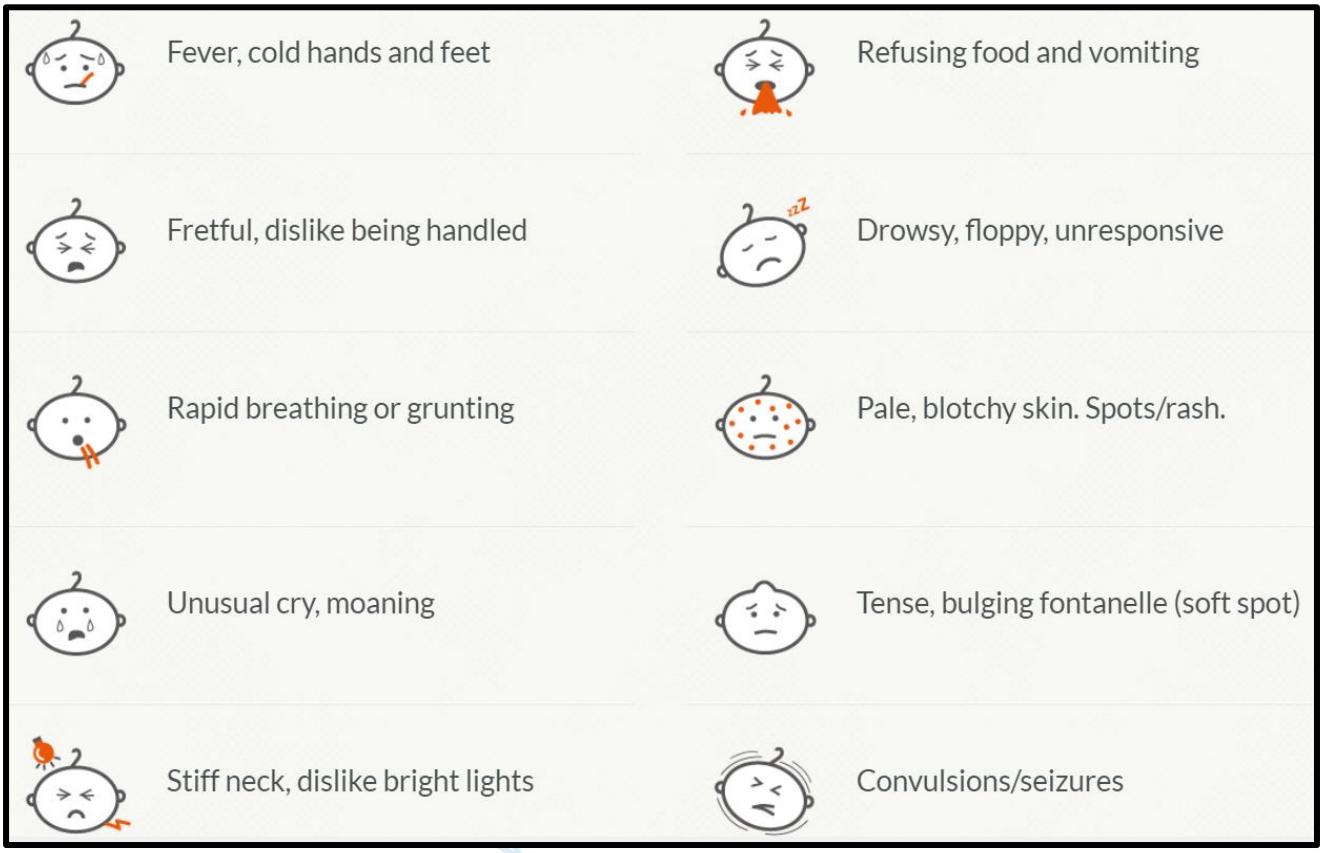
- **Diagnosis** → **Antibodies to Borrelia Burgdorferi**.
- **Treatment:**

√ Early disease → **Doxycycline** (First-line but **Contraindicated in Pregnancy** → **Amoxicillin** is given instead).

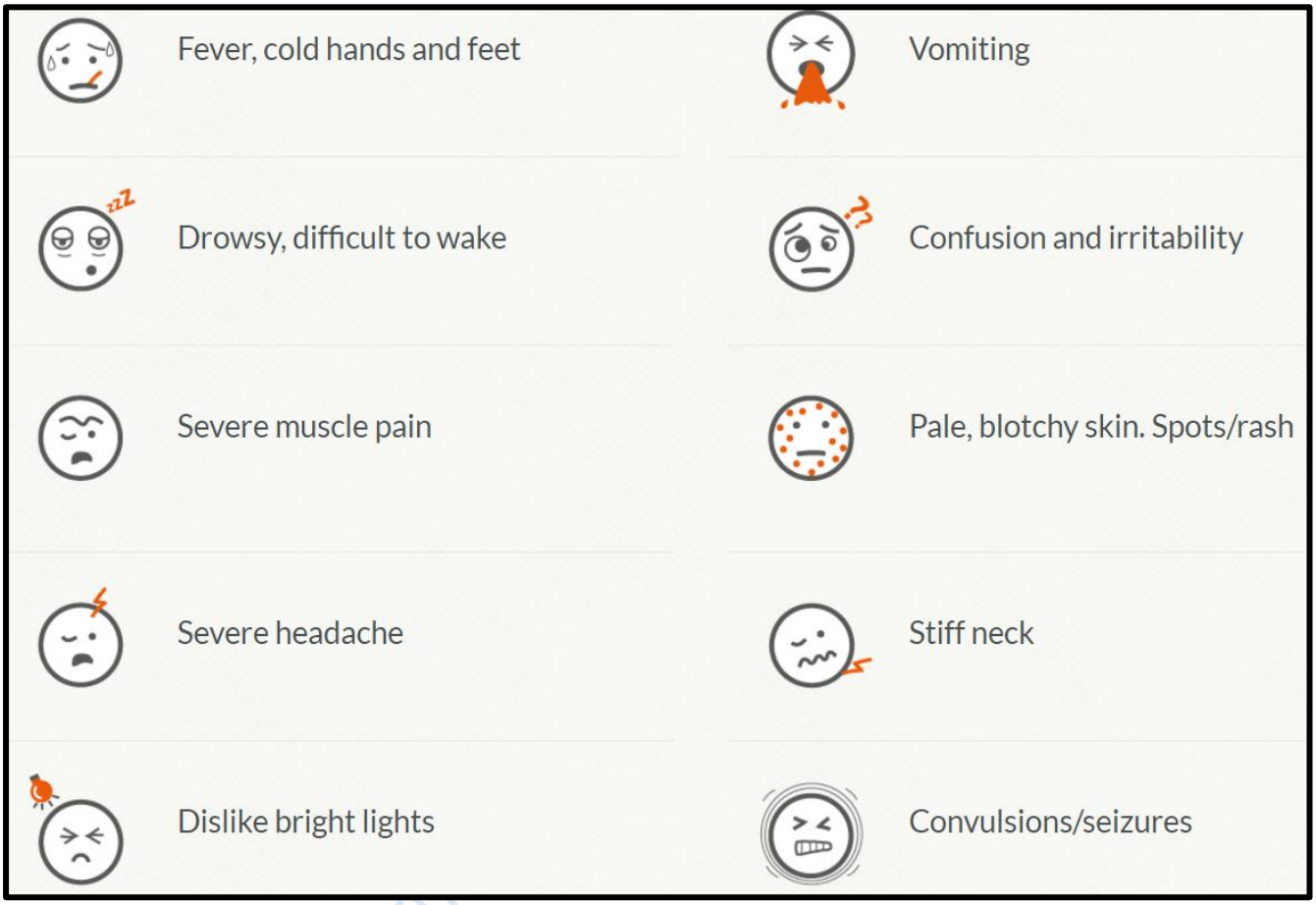
√ Disseminated Disease → **Ceftriaxone**.

Key 14

Common signs and Symptoms of Meningitis in Babies and Toddlers



Common signs and Symptoms of Meningitis in Children and Adults



These pictures are obtained from: www.meningitisnow.org

For the exam

If a patient presents with *fever*, *vomiting*, *headache*, altered mentation (*Abnormal GSC*), Hx of *seizure*, *Photophobia*.

♦ Likely → **Meningitis**.

♦ The most likely diagnostic investigation (For the Exam):

√ If **without rash**, pick → **Lumbar puncture** (LP) = **CSF Analysis**.

√ If **with Rash**, pick → **Blood culture** (Meningococcal Septicemia – Neisseria Meningitidis)

◙ For your knowledge, LP Contraindications:

- ↑ Intracranial pressure.
- Bulging, tense fontanelle.
- Ongoing seizure.
- GCS < 9 or a drop of ≥ 3.
- Unequal, dilated, unresponsive pupils.
- Papilledema.

◙ *Additional Important points for Meningitis:*

♦ **Treatment of Meningitis should be started ASAP even before the investigations.**

♦ **Notifying the local Health Protection Team should be made immediately once there is a clinical suspicion of meningitis.** (√)

	• **Points in favour of Septicemia: (Neisseria Meningitidis)** → Arthralgia and muscle aches, Cold periphery, Pale or mottled skin, SOB, Rash. • **Points in favour of Meningitis:** → Photophobia, Severe headache, Nick stiffness.
Key 15	**Read The Following Scenarios Carefully and Try to Absorb the Differences.** ◙ Hx of travel to/from **North Africa** (e.g., Egypt) + Fever + Anemia + Tender Enlarged Liver + Deranged liver enzymes + Jaundice. (No reason for dark urine) → **Amoebiasis (Liver amoebic disease)**. Amoebiasis (caused by Entamoeba histolytica) is endemic in North Africa. It presents with anemia, fever secondary to intestinal hemorrhage and tender enlarged liver with deranged liver function due to hepatic abscess. ◙ Hx of travel to/from **North Africa** (e.g., Egypt) + Fever + Tender Enlarged Liver + Deranged liver enzymes

✚ **Urinary** symptoms (Dark urine, Hematuria, Dysuria ± ↑creatinine, urea).

± Thrombocytopenia.

→ **Schistosomiasis (Schistosoma Haematobium)**.

◙ Hx of travel to/from **Africa** (e.g., Sudan) (usually the stem doesn't say NORTH Africa. If North, think more about Schistosoma, Amoeba)

+ Fever, Chills, Rigors ± Hepatomegaly, Hematuria (dark/red urine)

→ **Malaria**.

It is good to know that an infection with Schistosoma does not present with both (**Hepatomegaly**) and (**Hematuria**) at the same time. This is because the Schistosoma organisms responsible for these 2 features are different.

√ **Schistosoma Mansoni** → Affects **intestines** and **liver** → **Hepatomegaly**.

√ **Schistosoma Hematobium** → Affect the **Urinary Bladder** → **Hematuria, UB calcification and obstructive uropathy.**

"These 2 features are caused by 2 different species"

◙ **North** Africa **+** Malaria-like symptoms **+**

√ Diarrhea, abdominal pain, liver involvement:

Think → **Amoebiasis**.

√ Urinary (hematuria- dysuria), thrombocytopenia, liver involvement:

Think → **Schistosomiasis (S. Hematobium)**.

In Short:

Fever, chills and rigors, liver involvement

↓

Are there urinary symptoms?

↓

- **Yes** → Malaria or Schistosoma Hematobium

- Malaria → Africa (Sub-Saharan Africa, not north Africa), south east Asia.

- S. Hematobium (endemic on NORTH Africa, the Middle east).

- **No** urinary symptoms

→ Amoebiasis (+ GIT symptoms, dysentery, diarrhea), (Worldwide).

• All three (**Malaria**, **Schistosomiasis Hematobium**, **Amoebiasis** can present with: Fever, Chills, Rigors, Enlarged tender Liver, Deranged Liver functions.

• Both **Malaria** and **Schistosomiasis** can have Thrombocytopenia.

	• Both **Malaria** and **Schistosomiasis** can have dark urine (haemoglobinuria). - Malaria → Africa. - Schistosomiasis → North Africa. • **Amoebiasis** is unlikely to have thrombocytopenia, and no dark urine. The prominent is Dysentery, bloody diarrhea, worldwide (anywhere). ◙ Hx of travel to/from **India** + Fever, Cough, Cervical Lymphadenopathy, **Caseating Granuloma** in the LNs → **TB "Tuberculous Lymphadenitis".**
Key 16	**Needle Stick Injuries** **If a healthcare professional "e.g. a surgeon" is pricked by a needle:**

◙ **Basic 1st Aid** → Washing with soap under running water + Encouraging bleeding in the affected area.

◙ Request for the **patient's** permission to investigate him for blood-borne infections (**HIV**, **HCV**, **HBV**).

◙ **As for the affected "Pricked" healthcare professional:**

√ If the patient is a **low-risk** (e.g. safe sexual intercourse, does not use IV drugs)

→ Test the affected healthcare professional for **Hepatitis B surface antibody**.

√ If the patient is a **high-risk** (e.g. drug addict, IV drug user)

→ Start **Post-Exposure Prophylaxis** (**PEP**) for the affected healthcare professional.

√ Offer **Hepatitis B Booster** "if booster doses are not received previously or if the healthcare professional **cannot remember** when was the last time he received a booster dose".

Why do we care about Hepatitis B the most?

• This is because the chance for post-needle prick transmission of **HIV** is only **0.3%,** risk for transmission of **HCV** is **3%,** whereas transmission of **HBV** is as high as **30%!**

• **More importantly, the surgeon should return in 6 weeks to be tested for HIV and HCV as these need some time to appear in serum if he gets infected.**

Summary:

• **The patient** should always be tested for **all** the following:

HIV, **Hepatitis C** and **Hepatitis B** "after his consent".

• **The affected "pricked" doctor** should always be tested for **Hepatitis B** and **hepatitis B booster** should be offered **if** he cannot remember when the last time he received a booster or if he has not received a booster dose before.

• If the patient was a **high risk e.g., IV drug user,** then the "pricked" doctor needs to be started on PEP "**Post-Exposure Prophylaxis**".

◙ **Side Note:**

Hepatitis B (HBV) is 50 to 100 times easier to transmit sexually than HIV (the virus that causes AIDS). HBV has been found in vaginal secretions, saliva, and semen. Oral sex and especially anal sex, whether it occurs in a heterosexual or homosexual context, are possible ways of transmitting the virus.

Key 17

Important Notes on Meningitis Treatment "MUST memorise":

√ A patient presents to a **GP clinic** (**Not hospital**) with suspected **meningitis**

→ **BenzylPenicillin IM or IV**

√ A patient presents to a **hospital/ A&E** with a suspected **meningitis**

→ Start with 3rd Generation Cephalosporin **Ceftriaxone or Cefotaxime** "empirical" even before the investigations.

Imp. NOTE: If the patient is > 60 YO, we add IV ampicillin/ amoxicillin to ceftriaxone for fear of Listeria Monocytogenes. Therefore:

√ An over 60 YO patient presents to a **hospital** with a suspected **meningitis**

→ **IV Ceftriaxone + Amoxicillin**.

√ If a patient with suspected meningitis has **hypersensitivity to penicillin** or **cephalosporins** → **Chloramphenicol**

√ Notify **the Health Protection Team** **immediately** as soon as **there is clinical suspicion**. (Meningitis is a notifiable Disease)

• **IMPORTANT**:

√ In **Listeria Meningitis** → **Ceftriaxone (+) Ampicillin (+) Gentamicin**

	√ In **Cryptococcal Meningitis** → **Amphotericin B** • **Meningitis prophylaxis** (for contacts) → **Ciprofloxacin** "Preferred" or **Rifampicin**.
Key 18	◙ **HIV positive** patients should **NOT** be given the following vaccines: √ **BCG vaccine**. (X) √ **Yellow Fever Vaccine**. (X) ◙ If **CD4 < 200** cells/ ml → Also **AVOID MMR Vaccines**. (X) ◙ If **CD4 < 750** cells/ ml in children → Also **AVOID MMR Vaccines**. (X) If a child is due for MMR vaccination and he has HIV with CD4 >750 → **administer MMR vaccine as usual** (paracetamol is given if there is fever after receiving the vaccine).
Key 19	**Tetanus Prophylaxis** **Updated based on the recent UK guidelines.**

2 Questions to ask yourself:

1 ♦ Is the wound high risk; dirty/ contaminated/ compound fracture?

◙ If **Yes [i.e. high-risk wound]:**

√ If the victim is **not** fully immunised → give tetanus immunoglobulin.

√ If he/ she is fully immunised → no need for tetanus immunoglobulin.

◙ If **No [i.e. low-risk wound]**

→ **no need** for Tetanus Immunoglobulin regardless of the immunisation status.

2 ♦ What is the person's immunisation status?

√ **If Fully immunised/up-to-date** (completed 5 doses of tetanus vaccine) → **Do not give** tetanus vaccine.

An exception here is if the last booster dose was received **more than 10 years** ago and the wound is tetanus-prone, we give additional booster vaccine.

√ **If Unknown or Incomplete** → Give **Complete course of tetanus vaccine** (5 doses) **Or** Full course of **DTP** if never been immunised (**D**iphtheria, **T**etanus, **P**ertussis)

- The first question is concerning the tetanus immunoglobulin.
- The second question is concerning the tetanus vaccine.

♦ Important, sometimes we also give **antibiotics** as prophylaxis for wound infection if the wound is high risk and there is fever.

The new update, in short →

People who have completed the full course of the tetanus vaccine (including the booster doses) if injured with a deep or contaminated wound will no longer receive Tetanus Immunoglobulin. Instead, cleaning the Wound, reassurance & maybe an Antibiotic as prophylaxis.

In the past, people with contaminated wounds would receive tetanus immunoglobulin whether they had completed the doses or not. Now, if they had been given the full course, they won't be given tetanus immunoglobulin (the Hx of immunisation makes a difference now).

Important:

If the last booster dose had been received more than 10 years ago, we give a tetanus booster vaccine.

Notes:

◙ For **Adults** who did not receive tetanus vaccine as children, full course should be given as follows:

• The primary 3 doses should be given one month apart.

• The remaining 2 booster doses: the first booster is given at 10 years after the primary course, and the second booster is given 10 years after the first booster.

◙ For **Children (below 10 YO)** who did not receive tetanus vaccine before, full course should be given as follows:

• The primary 3 doses should be given one month apart.

• The remaining 2 booster doses: the first booster is given 3 years after the primary course and the second booster is given 10 years after the first booster.

Examples:

1 ♦ If clean wound in a child who has never been immunised?

→ Full course of DTP "Diphtheria, Tetanus, Pertussis", No need for Immunoglobulins as the wound is clean.

2 ♦ If contaminated wound in an adult who does not remember his last booster dose date?

→ Tetanus immunoglobulin (**+**) Full course of tetanus vaccine (as the immunisation status is unknown).

3 ♦ If a child deep penetrating wound + full course of tetanus vaccine (Up-to-date)?

→ According to the Sept 2019 update, nothing is needed as he has completed the full course of tetanus vaccine.

→ Clean the wound + Reassure ± Give prophylactic Antibiotic if the wound is contaminated.

4 ♦ If an adult with tetanus-prone wound + last booster vaccine was within the last 10 years → Reassure.

5 ♦ If an adult with tetanus-prone wound (e.g., puncture wound) + completed his immunisation but the last booster vaccine was given more than 10 years ago

→ Give tetanus booster vaccine ONLY. (Recently asked).

6 ♦ If an adult with a high-risk tetanus-prone wound (e.g., wound contaminated with soil) + last booster vaccine was given more than 10 years ago → Give tetanus booster vaccine + Tetanus immunoglobulin. (Recently asked).

Note that rabies vaccine is not indicated in the UK unless in bats bites. (Not in dogs bites)!

Getting Lost? The following is a simplified summary:

◘ **Tetanus-prone wound:**

√ Certain animal bites (e.g. stray animals that dig into soil).

√ Puncture injuries in a contaminated area (e.g. while gardening).

√ Compound fractures.

√ Wounds that contain foreign bodies.

◘ **High risk tetanus-prone wound:**

√ Wounds heavily contaminated with soil.

√ Extensive wounds/ burns.

◙ **A child who is up-to-date with his vaccination schedule:**

√ **Clean wound** → Nothing needed.

√ **Tetanus-prone wound** → Nothing needed.

√ **High-risk tetanus-prone wound** → Nothing needed.

◙ A child who has had the 1ry course (the first 3 doses) but delayed the booster doses:

√ **Clean wound** → tetanus booster dose (to continue with the schedule).

√ **Tetanus-prone wound** → tetanus booster vaccine.

√ **High-risk tetanus-prone wound** → tetanus booster vaccine + tetanus immunoglobulin.

◙ An adult who has had the last booster dose within the last 10 years:

√ **Clean wound** → Nothing needed.

√ **Tetanus-prone wound** → Nothing needed.

√ **High-risk tetanus-prone wound** → Nothing needed.

◙ An adult who has had the last booster dose more than 10 years ago:

√ **Clean wound** → Nothing needed.

√ **Tetanus-prone wound** → tetanus booster vaccine.

√ **High-risk tetanus-prone wound** → tetanus booster vaccine + tetanus immunoglobulin.

	◙ **Vaccination status is unknown (treated as unvaccinated):** √ **Clean wound** → tetanus vaccine. √ **Tetanus-prone wound** → tetanus vaccine + tetanus immunoglobulin. √ **High-risk tetanus-prone wound** → tetanus vaccine + tetanus immunoglobulin. ***Note that rabies vaccine is not indicated in the UK unless in bats bites. (Not in dogs bites).*** **In one of the exams, a scenario of a child who has never received vaccines presents with a cut on his finger from a broken glass.** The answer was: → Give DTP "Diphtheria, Tetanus, Pertussis" vaccine the in the A&E room and advise to complete the course of DTP vaccine.
Key 20	**Mumps: (Paramyxovirus) Transmitted via saliva droplets "close contact"** √ A contagious and infectious viral disease, causing swelling of the parotid salivary glands in the face, and a risk of sterility in adult males.

√ It affects most commonly the Salivary Glands, mostly the parotid glands.

• **Bilateral Parotitis** → **painful** and **tender** swelling at the angles of jaw (peri-auricular) bilaterally "usually".

• Fever, **Dry mouth** (due to blockage of salivary glands), difficult to open mouth or talk (due to swelling).

• **Orchitis (**4 or 5 days post-parotitis**)** (**NOT ALWAYS**) → local severe testicular pain and tenderness, Swollen oedematous scrotum, impalpable testes.

◙ **IMPORTANT**

There is no specific treatment for Mumps (neither antibiotics nor corticosteroids). All that is needed is **paracetamol**/ **ibuprofen** for fever and pain + **Reassurance**.

A Question:

If on **paracetamol** but still symptomatic → Give NSAIDs (eg, Ibuprofen).

(There is no specific management for mumps).

Key 21

Hepatitis B Serology (important points to memorise)

• HB**sAg** (+ve) → during **acute** and **chronic** infection "The **first** marker that **becomes abnormal** after acquiring Hepatitis B infection".

• HB**sAg** (+ve) and Hb**eAg** (+ve) → Highly infectious "Active viral replication"

(*eAger to spread***)**

√ What if antibodies against this I develop?

→ Anti-**Hbe** → **Indicates response to treatment.**

• Anti-**HBs** (+ve) → post vaccination (there is immunity).

(*Vaccine comes from Harvard Business School "HBs"*)

• Which Antibodies will be +ve at the onset of symptoms and will remain +ve even after treatment "**Indicates Past or ongoing infection**"?

→ The **core** antibody "Anti-**HBc**"

Note → s=surface | e=envelope | c=core | Ag=Antigen | Anti=Antibodies

In summary (a must-know points):

◙ The **first marker** to become abnormal → **HBsAg**. (**Acute/Chronic** infection)

◙ Indicates **high infectivity** → **HbeAg**.

◙ Indicates **recent vaccination** → **Anti-HBs**

◙ Indicates **past infection** → **Anti-HBc**

Additional:

IgM anti-HBc → Recent **acute** infection.

HBV **DNA** → Infectivity (Active viral replication).

√ Now, after you have understood the above keys, the following table is important.

√ Try to link the serology findings mentioned above with the following table.

√ (Note, you will need to highlight this Key and return back to it a few times in order to absorb it)

HBsAg **anti-HBc** **anti-HBs**	negative negative negative	Susceptible
HBsAg **anti-HBc** **anti-HBs**	negative positive positive	Immune due to natural infection
HBsAg **anti-HBc** **anti-HBs**	negative negative positive	Immune due to hepatitis B vaccination Important √
HBsAg **anti-HBc** **IgM anti-HBc** **anti-HBs**	positive positive positive negative	Acutely infected
HBsAg **anti-HBc** **IgM anti-HBc** **anti-HBs**	positive positive negative negative	Chronically infected www.Plab1keys.com

Important:

If Anti-HBs is positive, then there is immunity against Hepatitis B

√ If Anti-HBc is also positive → the immunity is due to natural infection.

√ If Anti-HBc is negative → the immunity is due to vaccination.

Key 22

Genital Ulcers (♂, ♀)

◙ **S**ingle, **Not**-painful ulcer → **Syphilis**. "*Syphilis painless, chancre*"

◙ **Multiple**, **Painful** ulcers (usually start as vesicles) ± Dysuria ± flu-like symptoms→ **HSV "Genital Herpes"** → give **Acyclovir**

◙ Single, Painful ulcer → **Hemophilus Ducreyi** (Chancroid). ("I **Do cry**" from Pain and being Single)

"**Important**: it can be multiple painful ulcers but they should have been started as single chancer i.e., single erythematous inflamed papule or patch, not vesicles like in HSV".

◙ Multiple painless growths (could be cauliflower shaped)

→ **Human papilloma virus 6,11 (genital warts)**

Important:

So, in **Genital herpes (HSV)** → multiple painful ulcers (started off as vesicles). ± usually have *malaise, fever, myalgia* ± painful micturition (*dysuria*).

In **Hemophilus Ducreyi** → single or multiple painful ulcers (started off as an erythematous papular lesion (an inflamed patch) later turn into painful ulcers ± This chancre is usually sexually acquired from abroad: outside the UK, usually developing countries).

Key 23

A summary of common infections related to Travel History

◙ Hx of travel to/from **North Africa** (e.g., Egypt) +

Fever + Anemia + Tender Enlarged Liver + Deranged liver enzymes + Jaundice.

→ **Amoebiasis (Liver amoebic disease)**.

Amoebiasis (caused by Entamoeba histolytica) is endemic in North Africa. It presents with anemia, fever secondary to intestinal hemorrhage and tender enlarged liver with deranged liver function due to hepatic abscess.

◙ Hx of travel to/from **Africa** (e.g., Sudan)

+ Fever, Chills, Rigors ± Hepatomegaly, Hematuria (dark/red urine)

→ **Malaria**.

◙ Hx of travel to/from **India** + Fever, Cough, Cervical Lymphadenopathy, **Caseating Granuloma** in the LNs → **TB "Tuberculous Lymphadenitis".**

◙ Chronic Productive Cough / Hemoptysis / Weight loss (Cachexia, malnurished) / Fatigue / Night sweats / RFs "**Homeless / Drug Abuser / Smoker**" → **Tuberculosis**

→ **Sputum for Acid Fast Bacilli**

If no sputum in the cough → **Bronchoalveolar lavage**

If patient refuses → **Gastric lavage**.

◙ Fever, Cough, Cervical Lymphadenopathy, **Hoarseness, Dysphagia, Weight loss, IV drug user, low socioeconomic**

→ **TB "Laryngeal TB"**

◙ Hx of travel to/from **Far East Asia** (e.g. Indonesia, Bangkok "Thailand's Capital") + Fever, headache, retro-orbital pain, General Rash, Myalgia, Tender cervical lymphadenopathy → **Dengue fever**

(*Sometimes, they will give a Hx of not taking malaria vaccine so they can trap you into choosing malaria*).

◙ Hx of travel to/from **India** + Flu-like symptoms + Enlarged Anterior Cervical LNs ± grey membranes on tonsils/ uvula.

→ **Diphtheria**

india = Diphtheria

◙ Hx of travel to/from **South America** + Severe headache + Patient adopts a crouching position → **Typhoid**

◙ Hx of travel to/from **South America, Africa + Farmer "contact with animals"** + fever + night sweat + arthralgia + weight loss ± splenomegaly → **Brucellosis**

◙ Hx of travel, **Prodrome (Initially)**: **HIGH Fever (40 C)**, **Watery Diarrhea**, **Headache**, **Myalgia** → Followed by **BLOODY Diarrhea**

→ **Campylobacter jejuni**. [**G-ve bacilli**]

→ Give erythromycin or azithromycin or clarithromycin.

Or if not in the options → ciprofloxacin.

◙ Hx of Travelling + **Water exposure** (Swimming/ Fishing/ Rowing) ± Contact with Animals.

√ Presents with → **Red eyes** (Subconjunctival Hemorrhage), Followed by **Yellow eyes** (Jaundice) + **Rash**

√ + **Others** (Fever, rigors, malaise, Arthralgia, Myalgia)

→ **Leptospirosis**.

√ To confirm Dx → **Serology**.

√ If not in the options → PCR of blood and urine.

√ If not in the options → Blood and urine culture and sensitivity.

◙ Hx of travel to **Africa** + Meningitis-like symptoms ± fever, Anemia

→ **Cerebral malaria**.

√ Test for definitive diagnosis → **Thin and Thick blood film for microscopy**.

Note: prophylaxis against Malaria does not exclude the possibility of an infection!

◙ Hx of travel + Diarrhea → **Bloody** Diarrhea, Fever, abdominal pain

→ Think of Traveller's diarrhea that causes bloody diarrhea

→ e.g. **Campylobacter jejuni** "Gram -ve Bacilli"

• Rx "Important" → **Erythromycin (first line)** (**or**) **Azithromycin** (**or**) **Clarithromycin** (**or**) **Ciprofloxacin (2nd line)**.

◙ Hx of Travel to certain areas especially those who have high exposure to animals (e.g. goats, sheep, camels, cattle, buffalos, pigs, dogs).

e.g. → Nigeria, South America, Middle East, Central and South-east Asia, Africa.

+ Hx of exposure to animals (e.g. **working in a farm**).

+ night sweat, fever, arthralgia, weight loss, splenomegaly.

→ **Brucellosis**.

◙ Traveller's diarrhea that is usually of a **short period** and self-limited in 72 hours (especially Hx of a travel to Africa) without bloody diarrhea

→ **E. coli**.

◙ Hx of travel, **WATERY Diarrhea** (Not-bloody), **Weight Loss,** abdominal pain, foul-smelling flatulence, bloating → **Giardiasis**

- First line investigation → stool microscopy "for ova, parasite"
- First line Rx → Metronidazole + Hygiene.

Key 24

HIV Post-exposure prophylaxis (PEP)

√ **Anti-retroviral medications** given as soon as possible after exposure (e.g. having a non-safe sexual intercourse with a high-risk individual or needle stick injury when the source is high risk or a bite from a high-risk biter such as a drug addict).

√ It should be started **as soon as possible** (from one to two hours **up to 72** hours post-exposure).

√ The first line PEP → Truvada and Raltegravir for 28 days.

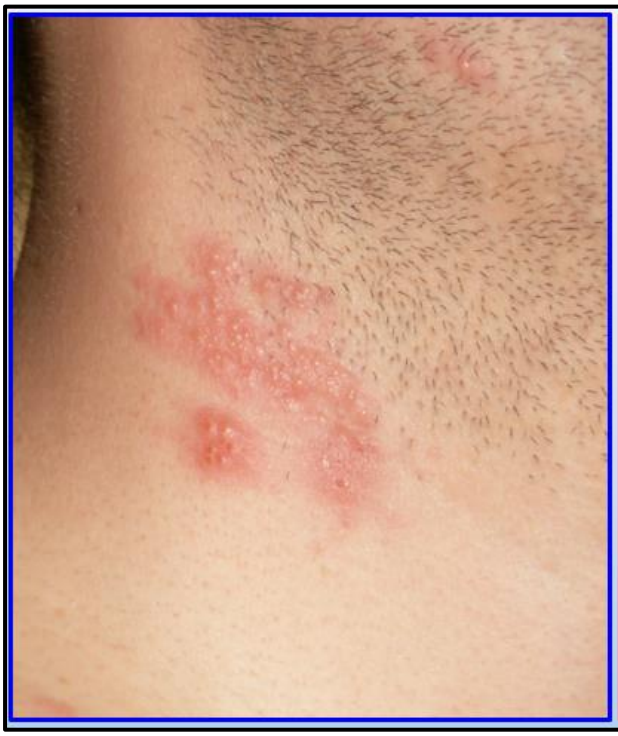
√ It should be given for **28 days** (not 5 days).

√ Follow-up HIV testing is recommended 8-12 weeks after exposure.

When can we reassure the contact person?

	If the source is on **Anti-retrovirals for ≥ 6** months and his HIV **viral load < 200**.
Key 25	Toxoplasmosis Treatment → **Pyrimethamine + Sulfadiazine**
Key 26	**Important Notes for Hepatitis B Serology** • HB**sAg** (+ve) and Hb**eAg** (+ve) → Highly **infectious** "Active viral replication" **(***eAger to spread***)** • Anti-**HBs** (+ve) → post **vaccination**/ recovery and immunity against HBV. (*Vaccine comes from Harvard Business School "HBs"*) --- ◙ **HBsAg** indicates (**Acute** or **Chronic** infection) and it is the **first marker** that becomes abnormal (+ve) after acquiring hepatitis B infection. ◙ **HbeAg** indicates active viral replication and thus high **infectivity**. ◙ **Anti-HBs** indicates an **immunity** either due to recent **vaccination** or a **recovered** infection.

	◙ **Anti-HBc** is positive once there is or there had been an infection. Therefore, it is positive in **acute** and **chronic** hepatitis and **remains positive even after recovery**.
Key 27	◙ **Shingles** (herpes Zoster) and **Chicken Pox** are caused by the same virus → Varicella Zoster Virus (VZV). √ Chicken Pox → Initial Infection with VZV. √ Shingles (Herpes Zoster) → Reactivation of VZV especially in immunocompromised / old patients. ◙ If **Immunocompromised** people (such as those on steroids, HIV-positive, DM, chemotherapy) have a Hx of exposure to patients with shingles Now, **Oral Aciclovir** is given to **Immunocompromised** individuals who have significant exposure to chicken pox/ shingles or shingles. **Immunocompromised patients Examples:** *Heavy smokers, DM, Cancer, Chemotherapy, Corticosteroids users.* • **Oral aciclovir** is also given to **pregnant women** who came in contact with chicken pox patients if they are not immune (ie, no history of getting chicken pox and the serology for VZV IgG is negative ie, not immune).



◙ **Shingles**, also known as **zoster** or **herpes zoster**, is a viral disease characterized by a painful skin rash with blisters in a localized area.

◙ Shingles is due to a reactivation of varicella zoster virus (VZV) in a person's body. The disease chickenpox is caused by the initial infection with VZV. Once chickenpox has resolved, the virus may remain inactive in nerve cells. Risk factors for reactivation include old age, poor immune function, and having had chickenpox before 18 months of age.

◙ Rx → Aciclovir.

Key 28

Some forms of Herpes Zoster:

◙ Ramsay Hunt Syndrome (Herpes Zoster Oticus) √

√ Reactivation of Varicella Zoster Virus (VZV) in the geniculate ganglion of the **facial nerve (7th CN)** → Facial palsy (ipsilateral facial palsy, loss of taste).

√ **Otalgia "ear pain"** "First symptom", Tinnitus, Vertigo, Unilateral Hearing loss, **Painful rash/ vesicles/ blisters around the ear** or on the auditory canal.

√ **Rx** → First → Oral **Aciclovir** (antiviral) + Corticosteroids (eg, **prednisolone**)

√ **If lasted for > 3 months**, it is called (**post-herpetic neuralgia**). If this occurs

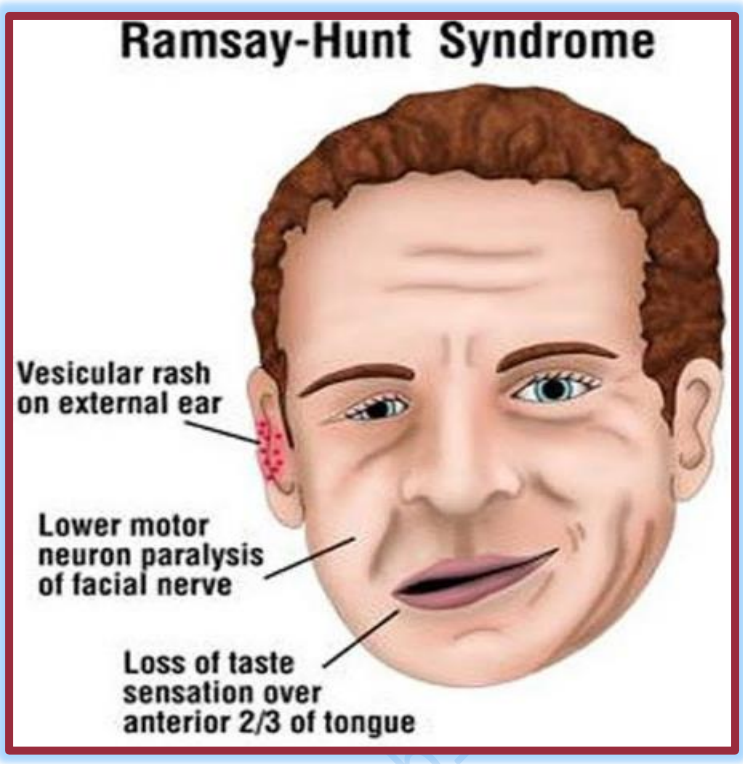
Give → *Amitriptyline* or *Pregabalin* or *gabapentin* or *duloxetine*.

Important Note:

Start with oral aciclovir. Prednisolone should be started within 2 weeks of symptoms. If The rash and pain persist for **more than 2 weeks**, it is better to add on a neuropathic agent eg, amitriptyline, or gabapentin or pregabalin or duloxetine. (They would be more beneficial than prednisolone after 2 weeks of the onset of symptoms).

So:

Aciclovir → up to 2 weeks, add prednisolone → **> 2 weeks** and still pain → one of the following: *Amitriptyline* or *Pregabalin* or *gabapentin* or *duloxetine.*

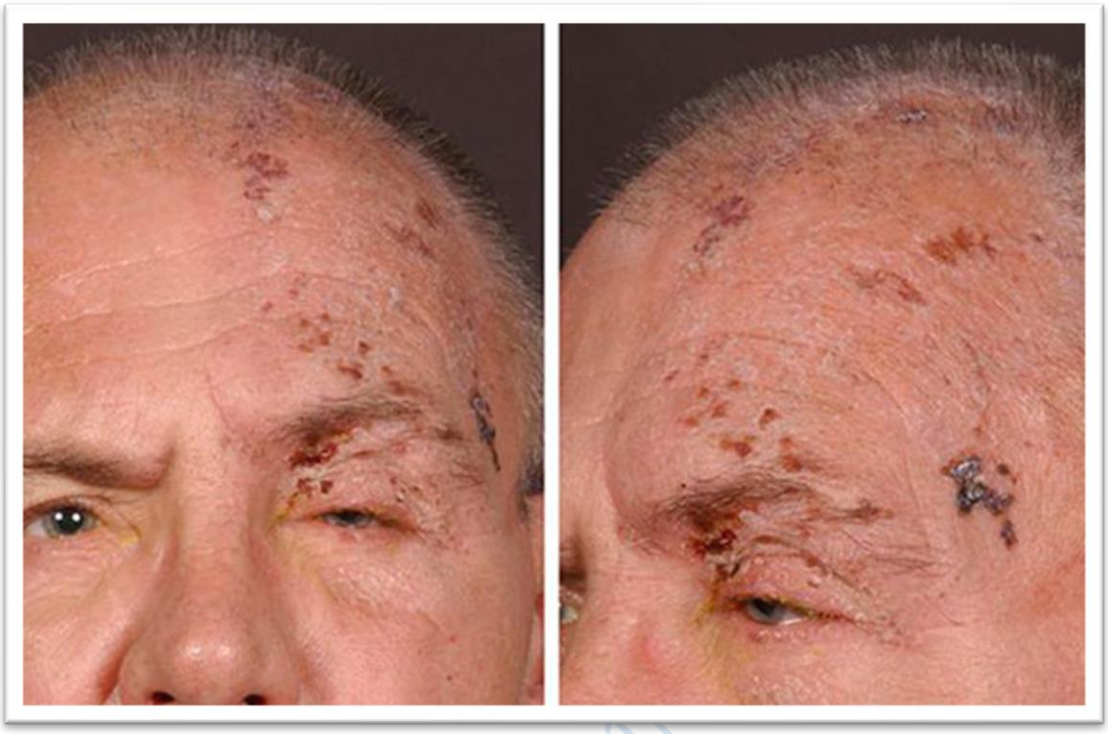


◙ Herpes Zoster Ophthalmicus. √

√ Reactivation of Varicella Zoster Virus (VZV) in the **Ophthalmic** branch of the **Trigeminal nerve (5th CN).**

√ Conjunctivitis, Keratitis, Painful Vesicles around the eye …etc.

√ Rx → Oral **Aciclovir** (antiviral) + Corticosteroids (eg, **prednisolone**)

	 **Herpes Simplex Ophthalmicus (ophthalmic branch of trigeminal nerve)**
Key 29	◙ 40 YO ♂ presents with **annular rash with scaly edges** on his **thigh** that's slowly growing over 3 weeks, associated **general pains and aches**. • The likely Dx → **Lyme Disease**. • The appropriate investigation → **Antibodies to Borrelia burgdorferi**. • First line treatment → **Doxycycline** (In pregnancy → Amoxicillin).
Key 30	◙ Hx of travel, **Prodrome (Initially)**: **HIGH Fever (40C)**, **Watery Diarrhea**, **Headache**, **Myalgia** → Followed by **BLOODY Diarrhea** → **Campylobacter jejuni**.

	√ Most cases of gastroenteritis due to campylobacter jejuni are **self-limiting** with good hydration. √ However, if severe disease → **Erythromycin (first)** or **Clarithromycin** or **Azithromycin or Ciprofloxacin.** • **Notes:** √ Campylobacter means **Curved Bacilli** "rods". It is **Gram -ve** on stool culture and sensitivity. √ So, **Campylobacter** → **Gram -ve Bacilli "rods"**. √ **V. Cholera** → **Gram -ve comma-shaped**. √ **Streptococcus pneumonia** → **Gram +ve Diplococci**. √ **Staphylococcal Aureus** → **Gram +ve** and **Coagulase +ve cocci "round"**
Key 31	**You need to remember 2 things when suspecting meningitis** √ Immediately **commence IV antibiotics** "**IV Ceftriaxone** or **Cefotaxime**" even **before** Investigations results. √ **Notify the Health Protection Team immediately** as soon as **there is clinical suspicion**. (Meningitis is a notifiable Disease)

Key 32

Cerebral Toxoplasmosis

◙ **↑ Intracranial Pressure** (brain mass lesion effect) → Headache, Eye pain, Seizures, Focal Neurologic Deficits, Confusion.

◙ Others → Visual Hallucination, Facial weakness.

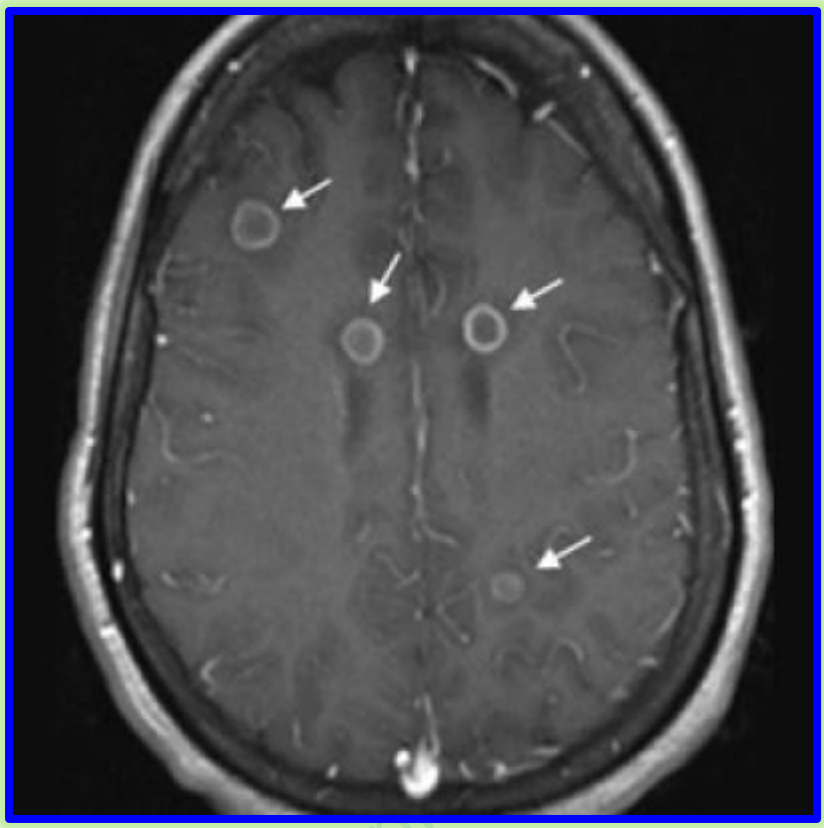
◙ **The causative organism** → **Toxoplasma Gondii**.

It lives and reproduces in **Cats' Guts**!

◙ It is **reactivated** especially in patients with **HIV-positive infection** when the **CD4 is** very low **(<100). (Hint √)**

◙ **Brain MRI with Contrast** → **Ring enhancing lesion/s**. **(Hint! √)**

◙ **Treatment of toxoplasmosis in general** → **Pyrimethamine + Sulfadiazine**.



MRI Brain with Contrast revealing **multiple ring enhancing lesions** in **Toxoplasmosis**.

Key 33

Sore throat, **Fever**, **Malaise**, **Cervical Lymphadenopathy**, **Exudates on tonsils (**Regardless of Hx of travel**)**

√ Likely Dx → **Infectious Mononucleosis** (= **Glandular Fever**).

√ The causative Organism → **Epstein-Barr Virus (EBV)**.

√ Investigation → **Heterophil antibody test** = **Monospot test** = **Paul Bunnel**

	◙ **Important Hint** → Receiving **ampicillin/ amoxicillin** leads to a development of → **Pruritic maculopapular rash**. ◙ Rx → **Supportive**
Key 34	**X-ray** → Urinary Bladder Calcification + Obstructive Uropathy **U/S** → Hydronephrosis + Thickened bladder wall **Africa** → **Schistosoma Haematobium**. ♦ Important → Schistosoma Hematobium can lead to **Bladder Cancer (SCC of bladder)** (may be after up to 20 years post-infection; lag period) **Remember:** √ **Schistosoma ManSoni** → affect **inteStines** and **HepatoSplenic** → **Hepatomegaly**, **Portal HTN**. √ **Schistosoma HematobiUm** → Affect the **Urinary Bladder** → **Hematuria, UB calcification, Ulceration and obstructive uropathy and later on bladder cancer risk.**

Key 35

Anti-malarial treatment

◙ **Africa** + Fever, Chills, Rigors, Myalgia ± Hepatomegaly, Hematuria (dark/red urine)

→ **Malaria**

√ If the question involves "blood film shows ring form **plasmodium** with **schuffner's dots** in RBCs", this means → latent/ dormant stage of Plasmodium ovale or vivax "**latent hypnozoites in liver**". These dormant Hypnozoites need **PRIMA** to Eradicate them.

So, the main treatment in this case would be → **Primaquine**.

√ Otherwise "Non-falciparum/ Non-Hypnozoite Malaria" → **Chloroquine**.

If fails → **Quinine**.

√ If pregnant ♀ travelling to Chloroquine-resistant area → **Mefloquine**.

This is because Primaquine targets all stages "The liver latent stage and RBCs" thus, eradicate, Whereas Chloroquine/ Quinine targets RBCs "Active stage".

In short,

♦ **Schuffner's dots**, Plasmodium, hypnozoites → **Primaquine**.

♦ **No Schuffner's dots** → **Chloroquine** or **Quinine**.

Note that: (Important)

• **Primaquine** is contraindicated in patients with **G6PD** as it can cause severe haemolysis. **Screening for G6PD is essential** before commencing anti-malarial therapy.

• **Primaquine** is also contraindicated in **pregnancy** and **breastfeeding**.

√ Chloroquine and Proguanil can be used in **pregnancy**; however, they are no longer effective in preventing Malaria in **chloroquine-resistant areas** such as Sub-Saharan Africa. Therefore, **we can see patients who are already on Malaria chemoprophylaxis and still got infected with Malaria**.

Q) So, what to give in a **pregnant** woman travelling to a **chloroquine-resistant area** as a prophylaxis? → **Mefloquine**.

√ pregnant → Primaquine is contraindicate.

√ the alternative in pregnant "chloroquine + proguanil" would not be effective in resistant areas.

→ Give mefloquine.

Key 36

Febrile Neutropenia (Neutropenic Sepsis)

Patient is unwell + Recent chemotherapy → Start IV Antibiotics IMMEDIATELY!

Still unwell after 4-5 days? → fungal infection investigation + Add IV Antifungals

Febrile Neutropenia "Neutropenic Sepsis"

From its name: Febrile → **Fever** ▌**Neutropenia** → **Low Neutrophils**.

√ Absolute **Neutrophil** count **≤ 0.5** X 10^9/L (Normal: 2-7.5 X 10^9/L)

√ **Fever** **(≥ 38.5**°C) or **2** consecutive temperature of **(≥ 38.0°C)**

• It occurs mainly after initiating **chemotherapy** in malignancy patients.

(Chemotherapy → BM suppression → ↓ Blood Cells Production).

• Another cause → within 1-year of Bone Marrow transplantation.

◙ How to manage? "Important"

• **Start empirical IV antibiotics IMMEDIATELY!**

• Start empirical → **IV Tazocin (Tazobactam + Piperacillin).**

• After 48 hours, if the patient is still febrile and/or neutropenic

→ Alternative antibiotic: **Meropenem** ± Vancomycin.

• After **4-6 days**, if the patient is still **unwell**

→ **Investigate for fungal infection**

(sometimes, the answer would be: **Add IV Antifungal**).

In Summary:

In a patient with neutropenic sepsis, if 4-6 days have passed and the patient is still febrile and/or neutropenic despite receiving adequate antibiotics

→ **Investigate for fungal infections**

Another correct answer → **Continue the antibiotics and Add IV Antifungals**

Important,

Sometimes, the neutrophil count will not be given in a stem. **Regardless of that, start IV antibiotics in all patients with recent chemotherapy who have fever and feel unwell** (suspected Neutropenic Sepsis).

♦ Remember that Tumour Lysis Syndrome can also develop after initiating of chemotherapy.

	Tumor Lysis Syndrome → **UK Pc** HyperUricemia (↑ **Uric Acid** "Also called **serum Urate**) → Gout. HyperKalemia (↑ K^+ "**Potassium**") HyperPhosphatemia (↑ **Phosphate**) Hypocalcemia. (↓ **Calcium**). √ It occurs mainly in Leukemia (Especially **ALL**) and Lymphoma (Particularly **Burkitt's Lymphoma**) after initiating **Chemotherapy**. √ Chemotherapy, Radiotherapy, Surgery → **Rapid Lysis of Tumour Cells** → Excessive amounts of Uric acid "Urate", Potassium and Phosphate are released into the blood.
Key 37	Remember, **TB Diagnosis:** √ First line → **Sputum for Acid-Fast Bacilli (AFB)**. √ If No Sputum on cough? → **Bronchoalveolar Lavage**. √ If bronchoalveolar lavage is refused by the patient? → **Gastric Lavage** (The patient might swallow sputum while asleep and thus gastric lavage could help obtain a sputum sample to be tested for AFB).

Key 38

Leptospirosis (The commonest Zoonotic infection)

√ Hx of Travelling + *Water exposure* (*Swimming*/ *Fishing*/ *Rowing*) ± *Contact with Animals*.

√ Presents with → *Red eyes* (Subconjunctival Hemorrhage), Followed by *Yellow eyes* (Jaundice) + Rash

√ + **Others** (*Fever*, rigors, malaise, Arthralgia, *Myalgia*)

√ **ALT** and **AST** are usually **elevated** (but rarely exceeding 200).

◙ **Diagnosis** (All investigations are important):

- First line → **Serology**.
- Second line → **PCR of blood and urine**.
- Third line → **Blood and urine culture and sensitivity**.

So, in the exam, pick → Serology.

If not in the options → PCR of blood and urine.

If not in the options → Culture of blood and urine.

√ The organism is detectable in **Blood** in the **first 7-10 days** of the disease.

√ The organism is detectable in **Urine** **after 7 days and up 30 days**.

Important:

*In leptospirosis, if you have to options (either serology **or** blood and urine culture and sensitivity), pick (**serology**) as urine and blood cultures may take several weeks and are less sensitive.*

◙ **Treatment**:

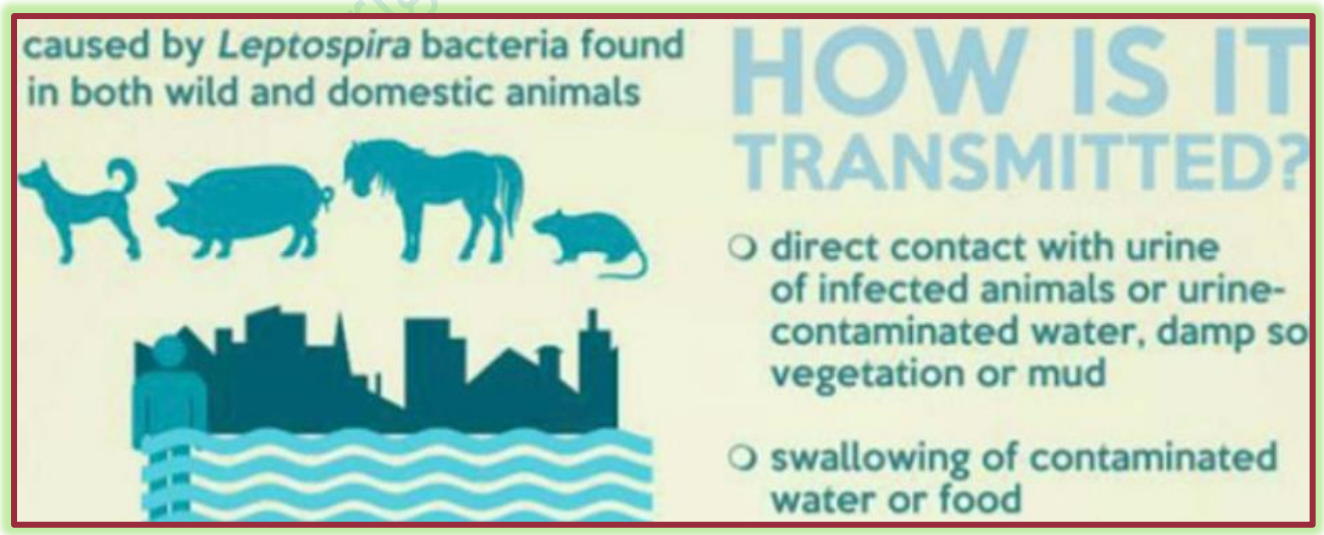
√ Usually mild and self-limited.

√ Oral Doxycycline (for mild cases).

√ Ampicillin or Benzylpenicillin (for severe cases).

◙ It spreads by contact with the **urine** of infected animals (Direct), or:

by contact with **water** that is contaminated with infected animal's urine (Indirect).



	Remember: Doxycycline → Chlamydial cervicitis, Lyme disease, Leptospirosis *Remember, Doxycycline is contraindicated in pregnancy, instead, give amoxicillin.*
Key 39	It is Very Difficult to differentiate the types of pneumonia clinically. However, try to memorise the next links as they usually (but not always) work and sometimes are given as hints: • **Herpes Labialis** → **StreptococcaL** (Pneumococcal). • **Erythema Multiforme, young, boarding, hostels** → **Mycoplasma** • **HIV** with **CD4 < 200** → **Pneumocystis Jirovecii** (Carinii) • Pneumonia developed **after influenza** (**Flu**) ± **IV drug** users → **Staph. Aureus**. • Pneumonia after Hx of **Exposure to Water, smoker** → **Legionella**.
Key 40	**Necrotising Fasciitis** (Mainly by **Group A beta-hemolytic Streptococci**) **Necrotising** = **Necrosis** **Fasciitis** = Infection spread deep and involves deep **Fascia** and muscles. √ Life-threatening as it spreads rapidly and involves deep layers (dermis, subcutaneous tissues, fascia, muscles).

√ RFx → **IM or SC Drug injections** / DM / Immunosuppression.

Initially (First 1-2 days), it resembles cellulitis (**erythema**, **swelling**, **pain** over the affected area). However, **it does not respond to flucloxacillin** (while Cellulitis responds).

Then → **Bullae** → **grey/ black skin** (Necrosis) → **hard** subcutaneous **tissue** → **septic shock**.

√ **VERY SEVERE PAIN** disproportionate to physical signs.

√ Rx → Urgent Surgical Debridement and IV antibiotics (e.g. IV Clindamycin/ Benzylpenicillin).

Note:

Necrotising Fasciitis *is diffuse and deep infection while* ***Erysipelas*** *is well-demarcated infection*.

Key 41	***Scenario*** A 5 YO child returned from Ghana with his family 6 weeks ago and now presents with fever, neck stiffness, chills, vomiting and impaired consciousness that have started 2 days ago. Before he left to Ghana, he was commenced on malaria prophylaxis. His FBC shows Anemia. **√ The likely Dx →** **Cerebral Malaria**. **√ Test for definitive diagnosis →** **Thin and Thick blood film for microscopy**. ◙ Be aware that **malaria prophylaxis does not guarantee** full protection against all subtypes of malaria. ◙ Suspect malaria in any patient who presents with a **fever** after a history of travel to a **Malaria-endemic area** (e.g. many parts of **Africa**) in the last year, particularly the **last 3 months**. Many cases may have non-specific symptoms and are thus misdiagnosed until late. ◙ Neck stiffness and Impaired consciousness are seen in both meningitis and cerebral malaria. However, the presence of **Anemia** points more towards cerebral malaria + the Hx of travel to Africa makes Malaria more suspicious.

	Hx of travel to Africa + Meningitis-like features + Anemia → **Cerebral malaria**.
Key 42	**Q) When can a child with chicken pox return to a school?** A) **After the rash and vesicles are dried and crusted** (Usually **around 5 days** after the onset of the rash).
Key 43	**In HIV-Positive patients, prophylaxis antibiotics might be needed:** √ If CD4 < 200 → **Co-trimoxazole** (Prophylaxis against **Pneumocystis jirovecii**). √ If CD4 < 50 → **Azithromycin** (Prophylaxis against **Mycobacterium avium**).
Key 44	Be aware that superficial **Neck Abscess** is not uncommon and **if large enough**, it can cause **dysphagia**. Once there is high **fever** with **erythematous skin swelling**, think of **Abscess**. Rx → **IV antibiotics, Incision and Drainage**. • The presence of fever, tachycardia and tachypnea warrants **Intravenous** (not-oral) antibiotics as the patient might be **septic**.

Red Flags for Sepsis:

- Responds only to voice or pain/ or unresponsive.
- Acute confusional state
- Systolic B.P ≤ 90 mmHg (or drop >40 from normal)
- Heart rate > 130 per minute
- Respiratory rate ≥ 25 per minute
- Needs oxygen to keep SpO2 >=92%
- **Non-blanching rash**, mottled/ ashen/ cyanotic
- Not passed urine in last 18 h/ UO < 0.5 ml/kg/hr
- Lactate ≥ 2 mmol/l
- Recent chemotherapy

Key 45

If a person has been bitten by a **high-risk** person (e.g. **Drug addict**)

→ **Start Post-Exposure Prophylaxis**.

Note, all human bites should be treated with a 7-day course of **Co-amoxiclav** (Amoxicillin + clavulanic acid e.g. Augmentin®) PO.

If penicillin allergic → Metronidazole + Doxycycline

Key 46

Whipple's disease

◙ A rare **multi-system** disorder caused by Tropheryma whippelii infection. It is more common in those who are HLA-B27 positive and in middle-aged men.

◙ Features

malabsorption: diarrhoea, weight loss

large-joint arthralgia

lymphadenopathy

skin: hyperpigmentation and photosensitivity

pleurisy, pericarditis

neurological symptoms (rare): ophthalmoplegia, dementia, seizures, ataxia, myoclonus.

◙ Investigation

Jejunal biopsy shows Stunted Villi and deposition of macrophages containing Periodic acid-Schiff (PAS) granules. [Diagnostic and Important for exam √]

◙ Management

guidelines vary: oral co-trimoxazole for a year is thought to have the lowest relapse rate, sometimes preceded by a course of IV penicillin

	The most important point to remember is that in a patient with **indigestion** and **Jejunal biopsy** reveals **Macrophages with PAS Granules** → **Whipple's disease**. **DDx:** • **Jejunal or Duodenal Biopsy in Celiac Disease:** - **Villous Atrophy.** - **Crypt hyperplasia**. - ↑ inter-epithelial **lymphocytes**.
Key 47	◙ Jejunal biopsy shows deposition of macrophages containing **Periodic acid-Schiff** (PAS) granules → **Whipple's Disease**. ◙ Duodenal/Jejunal biopsy shows Villous atrophy "Shortening", Crypt hyperplasia, lymphocytosis. → **Celiac Disease**. ◙ A patient with **known celiac disease** underwent duodenal biopsy that shows lymphomatous infiltrates → **Lymphoma**. "Remember, T-cell lymphoma is a rare complication of celiac disease".
Key 48	The most common organism for infectious mastitis/ abscess is → **Staph. Aureus**.

Breastfeeding Notes:

√ If the mother has **HIV** → **AVOID** breastfeeding!

√ If the mother has **Breast Abscess** → **Continue** Breastfeeding "usually".

√ If the mother has **Mastitis** → **Continue** Breastfeeding. (One of the causes of Mastitis is a failure to fully empty the breast during breastfeeding. Failure to empty the breast causes breastmilk stasis, which is associated with an increased risk for abscess formation. Treatment for mastitis involves encouraging mothers to breastfeed)

√ If the mother has **Nipple Candidiasis** → **Continue** Breastfeeding.

√ If the mother has **Hepatitis B** → **Continue** Breastfeeding (provided that the baby has received hepatitis B immunoprophylaxis).

√ If the mother has **Hepatitis C** → **Continue** Breastfeeding (unless the mother's nipple is cracked or bleeding).

√ If the mother has **TB** → **Continue** Breastfeeding. (babies need to be immunised with BCG as soon as possible), (Anti-TB drugs "RIPE" are not harmful to the baby).

√ If a **breastfeeding** ♀ has **depression**, what is the safe SSRI in Breastfeeding?

→ Sertraline (**S**afe in brea**S**tfeeding).

√ Also, **Sertraline** (followed by **Citalopram**) is the SSRI of choice in patients with Hx of **MI**. (Psychiatry chapter).

Key 49	**Remember,** Both **Mumps** (paramyxovirus) and **Chickenpox** (varicella zoster virus) are viral infections; thus, antibiotic has NO role. Treatment in both is **supportive**; Paracetamol, Ibuprofen for fever and pain and **reassurance**. However, in **chickenpox (not in mumps)**, if there is **superadded infection** (eg, indicated by vesicular ***discharge*** and high fever) → Give **antibiotics**.
Key 50	**Remember**, ◙ **HIV positive** patients should **NOT** be given the following vaccines: √ **BCG vaccine**. (X) √ **Yellow Fever Vaccine**. (X) ◙ If **CD4 < 200** cells/ ml → Also **AVOID MMR Vaccines**. (X)
Key 51	**What is the diagnosis of the next serology results?** • HBsAg -ve • Anti-HBs -ve

	• Anti-HBc +ve • HCV antibody reactive • HCV RNA detected **Let's analyse it:** **For Hepatitis B**: • HBsAg -ve → No Acute or Chronic Hepatitis B. • Anti-HBs -ve → No vaccination or immunity. • Anti-HBc +ve → **Possible recovered hepatitis B**. **For hepatitis C**, the presence of **HCV RNA** → **Current Hepatitis C Infection** √ For HCV, **initially** we do HCV antibody: this indicates if the patient has ever been exposed to HCV". √ If HCV antibody is positive, to confirm that he is "**currently and actively**" having hepatitis C, we do PCR for HCV RNA detection".
Key 52	**When can a cook "Food handler" "Chef" return to work after an attack of gastroenteritis?**

	→ **48 hours after all symptoms (eg, Diarrhea, Vomiting) have cleared** In the UK, **Gastroenteritis** patients can return to work after 2 days (**48 hours**) of the **last** episode of symptoms (Diarrhea or Vomiting).
Key 53	◙ Remember that **otitis media** can complicate into **Meningitis**! ◙ Remember that **Meningitis** can cause **hearing** loss and thus **hearing test** should be arranged after treating meningitis (Vice versa relation) :D
Key 54	◙ The four Anti-TB drugs are the same in pregnancy. √ (RIPE) → Rifampicin, Isoniazid, Pyrazinamide, Ethambutol √ These are **not**-contraindicated during pregnancy. ◙ **Streptomycin should be avoided during pregnancy** (Harmful to fetus)
Key 55	**The Main Side Effects of Anti-TB drugs** **Isoniazid (INH)** — Peripheral Neuritis (Give Vit. B6); Hepatitis; INH (3 letters) → SLE

	Rifampicin	Red-orange urine and secretions P450 induction
	Pyrazinamide	↑ Uric Acid → Gout
	Ethambutol	Visual (Eye) Problems: e.g. Red-green discrimination. Optic neuritis, ↓ Visual acuity.
	Streptomycin (Contraindicated in pregnancy) √	Ototoxic → Deafness
Key 56	Hx of travel + Diarrhea → Bloody Diarrhea, Fever, abdominal pain → Think of Traveller's diarrhea; e.g. **Campylobacter jejuni** "Gram -ve Bacilli" • Rx "Important" → **Erythromycin (or) Azithromycin (or) Clarithromycin (or) Ciprofloxacin (2nd line)**.	

Salmonella/ Shigella/ Campylobacter	**Erythromycin or** **Azithromycin or**

		Clarithromycin Or **Ciprofloxacin**

• Traveller's diarrhea main causes are **Salmonella** and **Campylobacter** jejuni.

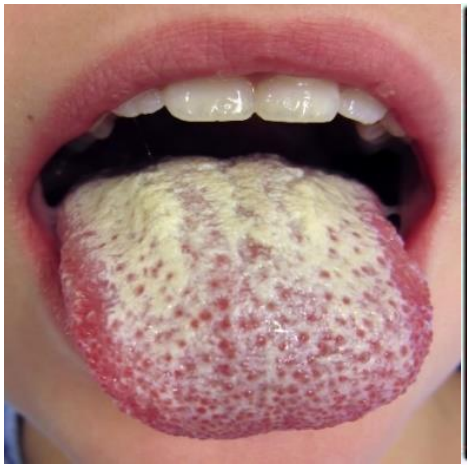
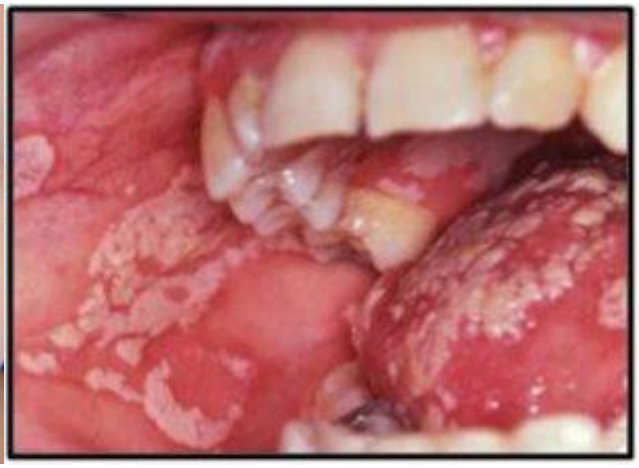
• Both are **gram -ve bacilli** (rods).

• They are **self-limiting** but treatment is needed especially in **elderly** and those who are **immunocompromised**.

√ Salmonella first line → Ciprofloxacin.

√ Campylobacter first line → erythromycin or clarithromycin ▌2nd → Ciprofloxacin.

Key 57	**Oral Thrush (Oral Candidiasis)**

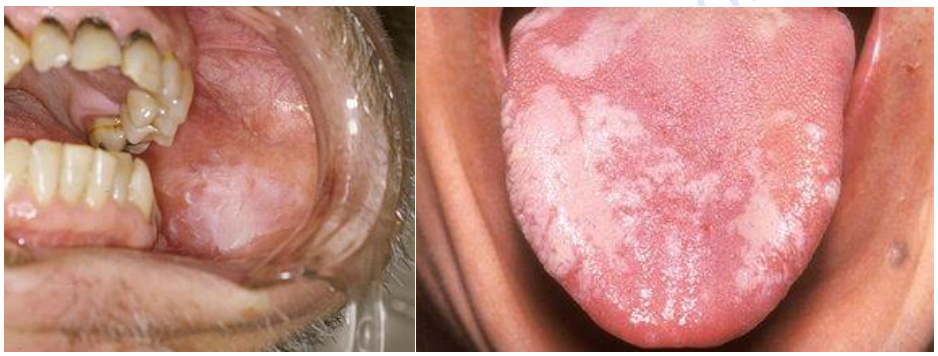



- RFx →Hx of **immunosuppression (e.g. DM, recent Hx of treatment using antibiotics, taking steroids)**, **smoking, elderly**
- **Thick** white marks ± **Inflamed** mouth/ tongue.
- **Note that Plaques might enlarge and become painful and cause discomfort while eating and swallowing.**
- **Can be rubbed out (removed).**
- **It might also present with red inflamed painful sore mouth angles.**

Treatment:

- Stop Smoking.
- Good inhaler techniques, spacer device, rinse mouth with water after use.
- **Oral Fluconazole 50 mg OD for 7 days or Fluconazole oral suspension.**
- If the infection is mild and localized → **Miconazole gel** "first line".

Leucoplakia



- Hx of **Smoking**.
- Raised edges, bright white patches, **sharply well defined**.
- **Cannot be rubbed out.**
- Tx → Stop Smoking + take biopsy (as they are premalignant).

Example,

A pregnant lady presents with thick white marks in her mouth for 3 weeks. O/E, her mouth and tongue appear inflamed. She smokes 20 Cigarettes a day.

The likely Dx → **Oral Thrush (Candidiasis).**

Rx → **Oral Fluconazole "or fluconazole oral suspension".**

- If the infection is mild and localized → **Miconazole gel** "first line".

√ Pregnancy → weak immunity → Candida albicans can grow.

√ Smoking is a precipitating factor in both Oral Candidiasis and Leukoplakia.

Example

An old immunocompromised patient presents with painful dysphagia (Odynophagia) + Redness, Fissuring and Soreness at the mouth angles.

→ **Candida albicans (Oral thrush)**

Painful dysphagia = odynophagia = candida "fungal

Candida Albicans can cause **Oesophageal Candidiasis** which presents with **Dysphagia** and **Odynophagia** (pain and burning sensation on swallowing food or fluid).

Another Differential Dx → Bacterial (Staph. Aureus)

Summary:

	√ **Oral Candidiasis** → Thick white marks + Can be rubbed out ± Inflamed mouth. √ **Leukoplakia** → White marks, cannot be rubbed out, sharply defined.
Key 58	**Young, fever, cough with sputum** → suspect **bacterial pneumonia** √ Cough, sputum, fever in (**very old** or **very young**) → think of pneumonia.
Key 59	**When can a cook "Food handler" "Chef" return to work after an attack of gastroenteritis?** → **48 hours after all symptoms (e.g. Diarrhea, Vomiting) cleared** In the UK, **Gastroenteritis** patients can return to work after 2 days (**48 hours**) of the **last** episode of symptoms (Diarrhea or Vomiting).
Key 60	**Suspecting meningitis, when to report it?** ♦ **Notifying the local Health Protection Team should be made immediately once there is a clinical suspicion of meningitis**

Key 61	**A patient presents with diarrhea. Blood culture and staining show gram negative curved rods.** √ Rx → First line (Erythromycin or Azithromycin or Clarithromycin). √ If these were not in the options, pick the second line, which is (**Ciprofloxacin**). • **Notes**: √ Campylobacter means **Curved Bacilli** "rods". It is **Gram -ve** on stool culture and sensitivity. √ So, **Campylobacter** → **Gram -ve Bacilli "rods"**. √ **V. Cholera** → **Gram -ve comma-shaped**. √ **Streptococcus pneumonia** → **Gram +ve Diplococci**. √ **Staphylococcal Aureus** → **Gram +ve** and **Coagulase +ve cocci "round"** √ Salmonella first line → **Ciprofloxacin**. √ Campylobacter first line → erythromycin or clarithromycin ▌2nd → **Ciprofloxacin**
Key 62	◙ **In breast Abscess, the commonest causative organism** → **Staphylococcus aureus**.

Key 63	**Positive acid-fast bacilli (AFB) on sputum sample.** → **TB "Tuberculosis"**. --- **Investigations of TB:** √ First line → **Sputum for Acid-Fast Bacilli (AFB)**. √ If No Sputum on cough? → **Bronchoalveolar Lavage**. √ If bronchoalveolar lavage is refused by the patient? → **Gastric Lavage** (The patient might swallow sputum while sleeping and thus gastric lavage could help obtain a sputum sample to be tested for AFB).
Key 64	**A pregnant in the 2nd trimester was in significant contact with a child with chicken post 7 days ago. The child developed chicken pox rash one day after meeting her. She has never had Varicella zoster infection. A stored blood sample is tested negative for varicella zoster virus IgG. Now, she has no rash.**

The best management → **Oral Aciclovir.**

• If she has never had Chicken pox (ie, she is not immune to it) or if the immunity status is unknown → **Check serum Varicella zoster Ab (IgG)** first

→ **If +ve (immune)** → **Reassure**.

→ **If -ve (not immune)** → Give **Oral aciclovir**.

Here, her serology is negative, so she is not immune.

So: Exposure within the infectious period + Not immune pregnant

→ Oral aciclovir.

• Aciclovir is effective if given within **14 days** after exposure (contact).

• If she develops **rash** → Give **Acyclovir** within 24 hours. (or IV if severe).

• If the serum varicella zoster virus IgG came back **Positive** (**immune**)

→ the answer would have been: **Reassure**.

Based on the New 2022 guidelines:

• Instead of ~~Varicella-zoster Immunoglobulins (VZIG)~~,

Now, **Oral Aciclovir** is given to **Immunocompromised** individuals who have significant exposure to chickenpox or shingles.

Immunocompromised patients Examples:

Heavy smokers, DM, Cancer, Chemotherapy, Corticosteroids users.

• **Oral aciclovir** is also given to **pregnant women** who came in contact with chickenpox patients if they are not immune (ie, no history of getting chickenpox and the serology for VZV IgG is negative ie, not immune).

In summary:

• Pregnant exposed to chicken pox → check the time of exposure, is it within the infectivity period? (2 days before until 5 days after the rash appeared on the person who she got in contact with).

• Pregnant exposed to chicken pox → check woman's history of immunity (had she received varicella vaccine? / Had she got infected with chicken pox?)

• If no history or unknown → **Check serology (VZV IgG)**.

• If Serology for VZV IgG is negative (not immune) → **Oral aciclovir**.

• If developed chicken pox rash → Oral or even IV aciclovir if severe.

What if she in contact (got exposed) to a chickenpox patient too long before this patient developing rash?

→ **Reassure**.

The infective period is typically 2 days before appearance of the rash until 5 days after rash appearance on the contact.

Example: If a pregnant woman got in contact with a chickenpox 8 days before his rash appearance? → **Reassure**.

Key 65	HIV Post-Exposure Prophylaxis (PEP) i.e. Anti-retroviral medications should be given as soon as possible within: → up to **72 hours** post-exposure. It should be given for **28 days**.
Key 66	**Linear tracks on skin** (**Burrows**) + **Severe Pruritus** (itching), specially at the skin fold "flexures" of → *wrists*, *finger webs*, *elbows*, *axilla*, areola, genitalia. ◙ First line treatment → **Permethrin 5%** (not 0.5%). ◙ Second line treatment → Malathion 0.5%. ♦ Usual hint → an elderly in the **Nursing Home** ♦
Key 67	◙ A case of bloody diarrhea and stool culture revealed gram negative curved rods (likely: C. jejuni) Rx → **ciprofloxacin** • **Rx of C. jejuni "Important"**

	√ First Line →Erythromycin (or) Azithromycin (or) Clarithromycin √ Second Line → Ciprofloxacin (2nd line).
Key 68	**Sore throat**, **Fever**, **Malaise**, **Cervical Lymphadenopathy**, **Exudates on tonsils** (Regardless of Hx of travel) √ Likely Dx → Infectious Mononucleosis (= Glandular Fever). √ The causative Organism → Epstein-Barr Virus (EBV). √ Investigation → Heterophil antibody test = Monospot test = Paul Bunnel ◙ Important Hint → Receiving **ampicillin/ amoxicillin** leads to a development of → Pruritic maculopapular rash. ◙ Rx → **Supportive** --- *Important Question:* **In IMN (Glandular fever), the most likely organ to be involved is → Spleen.**

	Around half the people who develop glandular fever will have a swollen spleen. A swollen spleen does not present any immediate health problems, but it increases the risk of the spleen rupturing (splitting). The main sign of a ruptured spleen is the sudden onset of a sharp abdominal (tummy) pain.
Key 69	[**Traveller's Diarrhea**] √ The main cause for traveller's diarrhoea (in general) is → **E. coli**. √ However, other organisms relating to travel can also cause diarrhoea, **depending on the presenting features and the country of travel**. For example, • Traveller's diarrhoea that is usually of a short period and self-limited (especially Hx of travel to Africa) → **E. coli**. • Hx of travel to Europe, WATERY (Non-bloody) diarrhoea, Weight Loss (If chronic), abdominal pain and bloating (Symptoms for > 10 Days) → **Giardia**. • Hx of travel → Prodrome: HIGH Fever, Headache, Myalgia → **Followed by BLOODY Diarrhea → Campylobacter jejuni** • Another important cause for traveller's diarrhoea is **Salmonella**, "presents the same as Campylobacter jejuni"

	√ Salmonella first line → **Ciprofloxacin**. (A question in Plab 1 September 2019 exam). √ Campylobacter first line → erythromycin or clarithromycin ▌2nd → **Ciprofloxacin** **N.B. Campylobacter jejuni is Gram Negative Curved Bacilli (Rods).** ◙ The traveller's diarrhoea can be caused by different organisms, depending on the features and the country of travel.
Key 70	**A 30 YO man who went to work in a farm in South America returned to the UK. He Developed 8 weeks history of night sweat, fever, arthralgia, weight loss and splenomegaly. Temp: 38°c** A. **Brucellosis** B. Lymphoma C. HIV D. Tuberculosis **Brucellosis** ◙ Infectious → Bacteria Brucella.

◙ Common in some areas especially those who have high exposure to animals (e.g. goats, sheep, camels, cattle, buffalos, pigs, dogs).

◙ Areas → Nigeria, South America, Middle East, Central and South-east Asia, Africa.

◙ **Inhalation**: the most common **mode of transmission** in endemic areas, affecting farmers, herdsmen "the owner or keeper of a herd of domesticated animals." (and particularly families where the animals share the same accommodation), laboratory technicians and abattoir workers "slaughterhouse".

◙ **Other modes of transmission include:**

√ Skin (intact or broken) or mucous membrane (conjunctival) contact

√ Consumption of infected/contaminated food: untreated milk/dairy products (particularly unpasteurised cheeses), raw meat or liver.

◙ The key point is to think of the diagnosis and then take a **travel** and **occupational** history.

◙ Most cases involve exposure to an infected animal e.g. working in a **farm** in an **endemic area**.

	◙ The incubation period is typically 5-30 days but can be up to six months or possibly longer. ◙ **Manifestations:** Brucellosis may be asymptomatic. Symptoms are generally nonspecific. Symptoms may appear suddenly over 1-2 days or gradually over seven days or more. In a study of 84 patients: √ Fever was observed in 73% of patients. It is a differential in pyrexia of unknown origin (PUO). Classically undulant but other patterns occur. √ Arthritis/arthralgia (in 64%). √ Other symptoms can include malaise, back pain, headaches, loss of appetite, weight loss (in chronic infection), constipation, abdominal pain, sleep disturbances, cough, testicular pain, and skin rash (less common). √ In around a quarter of patients: looks ill, pallor, lymphadenopathy, splenomegaly, hepatomegaly, epididymo-orchitis, skin rash. ◙ **Dx:** √ Initial → Rose Bengal test OR Serum agglutination test. √ Gold standard → Isolation of Brucella spp from a specimen. ◙ **Rx** → Doxycycline + Rifampicin for 6 weeks.
Key 71	**A 65yr old man presented with prior history of influenza presenting with cough and temperature of 38.5°c. Chest X-ray showed bilateral capitations.**

What is the likely diagnosis?

A. Hemophilia Influenza

B. Mycobacterium Tuberculosis

C. Mycoplasma pneumonia

D. **Staphylococcus aureus**

E. Streptococcus pneumonia

◙ Pneumonia Types Clinchers ◙

Mycoplasma	• Flu-like symptoms • **Erythema Multiforme**. **(Mycoplasma → Erythema multiforme)** ◙ Patchy consolidation often of 1 lower lobe.
Pneumocystis jirovecii (or: Pneumocystis Carinii) "a yeast-like fungus"	• Immunocompromised (**HIV** with **CD4 < 200**) • Exertional Dyspnea. • **Dry Cough**. • Bilateral consolidation.
Staphylococcus Aureus	• Usually in a patient with **influenza** infection (**Initially flu-like** symptoms then pneumonia). • Also common in **IV drug abusers** and elderly. ◙ Bilateral Cavitation.

Legionella	• Hx of contamination with **water**. ◙ Bi-basal Consolidation
StreptococcaL **(Pneumococcal)** (The commonest cause of pneumonia)	• TypicaL features of community acquired pneumonia; (productive cough/ fever/ unilateral basal crackles and consolidation) • Association with Herpes Labialis. ◙ Lobar Consolidation.

Klebsiella → Cavitating pneumonia particularly of **upper lobes**.

It is Very difficult to differentiate the types of pneumonia clinically. However, try to memorise the next links as they usually (but not always) work and sometimes are given as hints:

- **Herpes Labialis** → **Streptococcal** (Pneumococcal).
- **Erythema Multiforme** → **Mycoplasma**
- **HIV** with **CD4 < 200** → **Pneumocystis Jirovecii** (Carinii)
- Pneumonia developed **after influenza** (**Flu**) → **Staph**. **Aureus**.
- Pneumonia after Hx of **Exposure to Water** → **Legionella**.

Key 72

18-year-old presented to the A&E with deterioration/confusion and wide spread petechial rash + signs of meningitis. BP 80/50. ECG shows sinus rhythm with pulse 120bpm. Most appropriate antibiotic?

a. Vancomycin

b. **Ceftriaxone**

c. Ciprofloxacin

d. Amoxicillin

e. rifampicin

CNS (Meningitis)	
Out-of-hospital Meningitis (e.g. at a GP clinic)	Benzylpenicillin
In-hospital meningitis (most types)	Ceftriaxone
Listeria Meningitis	Ceftriaxone + Ampicillin + Gentamicin
Cryptococcal Meningitis	Amphotericin B
Meningitis Prophylaxis “for contacts”	√ Ciprofloxacin “preferred” or: √ Rifampicin

Key 73	**32-year-old woman, 34 weeks pregnant presents with maculopapular rash. Toddler son had chicken pox 2 weeks ago. How would you treat?** A. IV varicella zoster Ig B. **IV acyclovir** C. IV ganciclovir D. IM immunoglobulin E. SC varicella zoster Ig As she has developed the rash, she needs Aciclovir.
Key 74	**A 54 yr old man with left sided facial pain and painful rash extending to the midline of his nose. He had complained of headache 2 weeks prior with no cause found. What is the affected structure?** a) extra cranial Facial nerve b) **Trigeminal ophthalmic nerve** c) Vestibulocochlear nerve d) Oculomotor nerve **○ Herpes Zoster Ophthalmicus. √** √ Reactivation of Varicella Zoster Virus (VZV) in the **Ophthalmic** branch of the **Trigeminal nerve (5th CN).**

√ Conjunctivitis, Keratitis, Painful Vesicles around the eye (unilateral facial painful rash) …etc.

√ Rx → Aciclovir.

Also Remember:

◙ Ramsay Hunt Syndrome (Herpes Zoster Oticus) √

√ Reactivation of Varicella Zoster Virus (VZV) in the geniculate ganglion of the **facial nerve (7th CN)** → Facial palsy (ipsilateral facial palsy, loss of taste).

√ **Otalgia "ear pain"** "First symptom", Tinnitus, Vertigo, Unilateral Hearing loss, **Painful rash/ vesicles around the ear** or on the auditory canal.

√ Rx → Oral Aciclovir + Corticosteroids + Amitriptyline "for the pain".

Important Note:

Start with oral aciclovir. Prednisolone should be started within 2 weeks of symptoms. If The rash and pain persist for **more than 2 weeks**, it is better to add on a neuropathic agent eg, amitriptyline, or gabapentin or pregabalin or duloxetine. (They would be more beneficial than prednisolone after 2 weeks of the onset of symptoms).

So:

Aciclovir → up to 2 weeks, add prednisolone → **> 2 weeks** and still pain → one of the following: *Amitriptyline* or *Pregabalin* or *gabapentin* or *duloxetine.*

Key 75	**A 12 YO girl presents with fever, dry cough and hoarseness of voice of a 3-day duration. On direct laryngoscopy, there is oedematous vocal cord. What is the next most appropriate investigation?** → **No further investigations required.** **This is likely a case of common cold or a common laryngitis which does not need any further investigations.** **• Laryngitis is a swelling of the vocal cord usually caused by an infection, commonly viral (common cold). Another reason is the overuse of voice.** **• All that is needed is to rest your voice and to drink a plenty of fluid. If there is fever, take paracetamol.**
Key 76	**What is the drug of choice in treating MRSA?** √ **MRSA** (**M**ethicillin-**R**esistant **S**taphylococcus **A**ureus) √ **Vancomycin** is a glycopeptide which continues to be the drug of choice for treating most MRSA infections caused by multi-drug resistant strains. √ Another good glycopeptide for MRSA is teicoplanin.

Key 77	**A 25 YO married man presents with a 3-day history of painful vesicles on his glans penis and buttocks and with painful micturition. There is no Hx of similar episodes in the past.** **Of the following, what is the most appropriate investigation?** **A) Antibodies for HSV** **B) Urethral swab for gram stain and culture** **C) Viral culture of the lesion** The answer → **Viral culture of the lesion**. √ This is likely a case of primary infection with HSV. √ **If** the stem includes a Hx of **repeated** infections → **antibodies to HSV**. Imp √ **◙ HSV Investigations in Short (Commonly Asked)** **√ First Line → NAAT testing (including PCR):** • NAAT, which includes PCR, is the gold standard for detecting HSV. It is superior to viral culture for sensitivity and accuracy.

√ **Other tests → Viral culture + DNA detection using PCR (Polymerase Chain Reaction):**

- Viral culture is less sensitive than NAAT/PCR but may still be used where NAAT is unavailable. The sample collection method for both is a **viral swab** from the lesion.

  So, in the exam: NAAT → PCR → Culture (Method of collection: Swab).

√ **If Negative and the ulcers are recurrent/atypical? → Anti-HSV antibody:**

- **Serology** can detect past exposure to HSV (types 1 and 2) but is not useful for diagnosing acute infections. It may help in cases of atypical or recurrent presentations when swabs are negative.

◙ Syphilis Investigations in Short (Commonly Asked)

√ **If the penile ulcer is still present**

→ Swab the penile ulcer for Dark field microscopy (if in Genitourinary clinic) or swab the penile ulcer for PCR (if the patient is in a GP clinic).

√ **If the penile ulcer has healed but the mouth ulcers are present**

→ Swab of the mouth ulcers for PCR.

	Bear in in mind that swabs of oral lesion cannot be tested under dark field microscopy. If there no (swab of oral ulcers for PCR) in the options, pick syphilis serology. √ **If both penile and mouth ulcers have healed** → Serology for syphilis.
Key 78	**Caution,** In a previous key, we mentioned that first line treatment of Lyme disease is Doxycycline. However, **doxycycline is CONTRAINDICATED in pregnancy**. Thus, we give **Amoxicillin** instead. ◙ **Hx of Camping or Walking in gardens/ Jungles.** ◙ **Erythema Migrans** (erythematous, painless, non or mildly itchy) ± (fever, headache, myalgia, general aches and pains) ◙ **Later On (Possible)** → Facial Paralysis, Meningitis, AV-heart block, Myocarditis, Arthritis. It might present as **annular rash with scaly edges** (e.g. on the thigh) that's slowly growing with associated **general pains and aches**. ◙ **Diagnosis** → **Antibodies to Borrelia Burgdorferi**.

	◙ **Treatment:** √ Early disease → **Doxycycline** (First-line but **Contraindicated in Pregnancy** → **Amoxicillin** is given instead). √ Disseminated Disease → **Ceftriaxone**. √ **Pregnant** woman → **Amoxicillin**.
Key 79	√ A patient presents to a **GP clinic** (**Not hospital**) with suspected **meningitis** → **BenzylPenicillin IM or IV** √ A patient presents to a **hospital/ A&E** with a suspected **meningitis** → Start with 3rd Generation Cephalosporin **Ceftriaxone or Cefotaxime** "empirical" even before the investigations. ***Imp. NOTE***: If the patient is **> 60 YO**, we add IV ampicillin/ amoxicillin to ceftriaxone for fear of Listeria Monocytogenes. Therefore: √ An over 60 YO patient presents to a **hospital** with a suspected **meningitis** → **IV Ceftriaxone + IV Amoxicillin**.
Key 80	◙ Hx of travel to **Africa** + Meningitis-like symptoms ± fever, Anemia → **Cerebral malaria**.

	√ Test for definitive diagnosis → Thin and Thick blood film for microscopy. √ ◘ Note: prophylaxis against Malaria does not exclude the possibility of an infection! ◘ Note: the symptoms may appear up to 6 months after returning from an endemic area such ad Africa.
Key 81	**Note: Cellulitis might have blisters.** **Note: Cellulitis might not present with fever.** **Rx of Cellulitis:** √ 1st line: **Flucloxacillin** √ If penicillin allergic: **Clarithromycin** or **Erythromycin** (if pregnant) or **Clindamycin**. √ If MRSA: **Vancomycin** **In a recent exam, a picture of cellulitis with blisters was given, the patient in the stem was allergic to penicillin, the answer was → Clarithromycin.** **If the cellulitis is uncomplicated, and the patient is not allergic to penicillin, pick Flucloxacillin as a first-line treatment.**
Key 82	**Regarding meningitis, CSF sample can give a clue about the causative organism as follows:** **√ Normal CSF → Clear**

√ Viral meningitis CSF → Clear

√ TB meningitis CSF → Fibrin web

√ Bacterial meningitis CSF → Purulent (or: turbid, or cloudy).

Examples of Bacterial Meningitis organisms:

◘ **Streptococcus pneumoniae (pneumococcus).** This bacterium is the most common cause of bacterial meningitis in infants, young children and adults. It more commonly causes pneumonia or ear or sinus infections. A vaccine can help prevent this infection.

◘ **Neisseria meningitidis (meningococcus).** This bacterium is another leading cause of bacterial meningitis. These bacteria commonly cause an upper respiratory infection but can cause meningococcal meningitis when they enter the bloodstream. This is a highly contagious infection that affects mainly teenagers and young adults. It may cause local epidemics in college dormitories, boarding schools and military bases. A vaccine can help prevent infection.

◘ **Haemophilus influenzae (haemophilus).** Haemophilus influenzae type b (Hib) bacterium was once the leading cause of bacterial meningitis in children. But new Hib vaccines have greatly reduced the number of cases of this type of meningitis.

◘ **Listeria monocytogenes (listeria).** These bacteria can be found in unpasteurized cheeses, hot dogs and lunchmeats. Pregnant women, newborns, older adults and people with weakened immune systems are most susceptible. Listeria can cross the placental barrier, and infections in late pregnancy may be fatal to the baby.

	Important: **In suspected meningitis (fever, neck rigidity, photophobia…etc) +** ◆ **Turbid/ purulent/ or cloudy CSF + (No rash)** → **Think: Streptococcus pneumoniae.** ◆ **Turbid/ purulent/ or cloudy CSF + (There is non-blanching Rash)** → **Think: Neisseria Meningitidis.** √ Turbid/ purulent/ or cloudy CSF = Bacterial meningitis. √ The presence of rash goes more with Neisseria rather than Strept. Pneumoniae.
Key 83	**In patients with known or suspected cases of TB, they need to be isolated in a Negative pressure room.**
Key 84	**Osteomyelitis** Osteomyelitis describes an infection of the bone. It may be subclassified into: **Haematogenous osteomyelitis** • results from bacteraemia • is usually monomicrobial

• most common form in children

• *vertebral* osteomyelitis is the most common form of haematogenous osteomyelitis in adults.

• Risk factors include: sickle cell anaemia, intravenous drug user, immunosuppression due to either medication or HIV, infective endocarditis

Non-haematogenous osteomyelitis:

• results from the contiguous spread of infection from adjacent soft tissues to the bone or from direct injury/trauma to bone

• is often polymicrobial

• most common form in adults

• risk factors include: diabetic foot ulcers/pressure sores, diabetes mellitus, peripheral arterial disease

◙ Microbiology

Staph. Aureus is the most common cause except in patients with sickle-cell anaemia where Salmonella species predominate.

◙ Investigations

MRI is the imaging modality of choice, with a sensitivity of 90-100% (**imp √**).

◙ Management

	√ flucloxacillin for 6 weeks √ clindamycin if penicillin-allergic
Key 85	**Clostridium difficile [Pseudomembranous Colitis]** • **Receiving certain Antibiotics can suppress the normal flora that inhabits the GIT. Therefore, C. Difficile becomes free to infect the GIT causing "Pseudomembranous Colitis".** • **Examples of the antibiotics that can cause C. Difficile:** Clindamycin, Amoxicillin, Ampicillin, Co-Amoxiclav, Broad spectrum cephalosporin, Quinolones (e.g. Ciprofloxacin). • **Manifestations:** • Hx of recent treatment with antibiotics (e.g. Amoxicillin, clindamycin) for 4-9 days or more. • Diarrhea (might be bloody but not always bloody √). • Abdominal pain (might be very severe). • Fever. • High WBCs and CRP.

- **Investigation** → Clostridium Difficile Toxin (CDT) in the stools.

- **Treatment**:

√ 1st Line → **Oral Vancomycin**.

√ 2nd line → **Oral Metronidazole**.

(Recently, **vancomycin** has become the first line. However, if it is not in the options, pick the second line which is metronidazole).

Scenario

A patient with Cellulitis admitted for 3 days and treated with clindamycin. Soon after, he develops bloody diarrhea, abdominal pain and high fever. WBCs and CRP are high.

- The diagnosis? → **C. Difficile (Pseudomembranous Colitis)**.
- The treatment → **Vancomycin**.
- If not on the options? →pick **metronidazole**.

Note: clostridium difficile can easily spread to others. √

Key 86	Needlestick injury while extracting a blood sample from a high-risk patient (e.g., IV drug user) → Start post-exposure prophylaxis as soon as possible.
Key 87	**Meningitis VS Cerebral Malaria** **◙ Scenario (1):** **A 23 YO man has recently returned from the UK where he was living with other students in a dorm. He started to have headache, stiff nick and photophobia yesterday. Also, over the past 2 days, he has been having profuse sweating, muscle aches and malaise. His temperature is 38.9. He has completed 6-week prophylaxis against malaria and has been vaccinated against yellow fever before his travels.** The best investigation for definitive diagnosis → **Lumbar puncture**. √ He is likely having **meningitis** (headache, stiff neck, photophobia, fever). √ The most common type of meningitis in this age is meningococcal meningitis (caused by Neisseria meningitidis). √ Outbreaks of meningitis is common in young adults living in crowded places. √ Remember, Malaria is not common in the UK.

√ However, if the question gives additional clues towards malaria such as having jaundice, anemia, thrombocytopenia, then cerebral malaria would be a more suspicious diagnosis and for which, the gold standard test would be → Thin and thick blood film for microscopy.

◙ Scenario (2):

A 12 YO boy has recently returned to the UK 2 months ago. He was in a vacation with his family visiting West Africa. He started to have headache, general muscle aches and stiff nick yesterday. Also, over the past 5 days, he has been having profuse sweating, diarrhea, muscle aches and malaise. His temperature is 38.1. He has completed 6-week prophylaxis against malaria and has been vaccinated against yellow fever before his travels.

The best investigation for definitive diagnosis

→ **Thin and thick blood film for microscopy**.

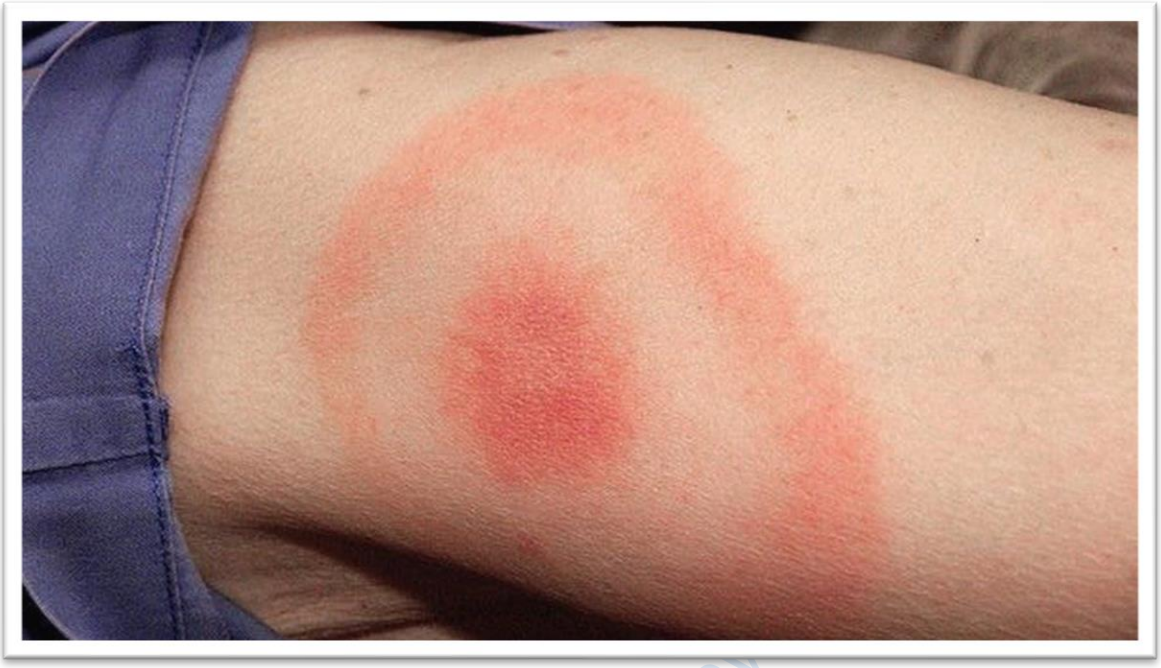
√ He is likely having cerebral **malaria**.

√ He was in Africa (more towards malaria).

√ He has jaundice (more towards malaria).

√ FBC of this patient may also show anemia and thrombocytopenia but it was not mentioned here.

	√ In the scenario (1), the patient was in the UK, has no jaundice, was living in a dorm with other people "outbreaks of meningococcal meningitis is common in young adults who live in crowded environments". √ Suspect malaria in any patient who presents with a fever after a history of travel to a Malaria-endemic area (e.g. many parts of Africa) in the last year, particularly the last 3 months. Many cases may have non-specific symptoms and are thus misdiagnosed until late. ☼ Neck stiffness, fever, and Impaired consciousness can be seen in both meningitis and cerebral malaria. However, the presence of jaundice here points more towards cerebral malaria + the Hx of travel to Africa makes Malaria more suspicious. √ Meningitis is an important differential here however, the exam writer would make some points towards meningitis like photophobia, living in a dorm with other people "outbreaks of meningococcal meningitis.
Key 88	**A 42 YO woman has been having rash on her arm for 3 weeks. It is expanding. She also has low-grade fever, fatigue and joint pain. A picture of the rash is shown:**



◙ **The likely Dx** → Lyme disease

See the erythema migrans (migrating, expanding rash ± flue like symptoms, joint pain → Think Lyme disease).

◙ **The appropriate investigation**

→ Lyme serology (Antibodies to Borrelia Burgdorferi).

Key 89	**A 57 YO man complains of white-yellowish coats and patches on his tongue, palate and buccal mucosa, and a mild burning sensation of his oral cavity. He smokes 5-10 cigarettes a day for the past 10 years. He has COPD for which he takes salbutamol and inhaled corticosteroids everyday.**

	√ The likely Dx → Oral thrush "candidiasis" (due to the prolonged use of inhaled corticosteroids). **√ The most appropriate management →** Fluconazole orally.
Key 90	**A 26 YO man has recently come back from Africa and now is having multiple painful ulcers on his penile shaft and prepuce. He informed that he was active sexually when he was in Africa. He describes that these painful ulcers had started off as an erythematous papular lesion and later on turned into painful ulcers. He is otherwise well. What is the likely Dx?** → **Hemophilus Ducreyi** **Read the DDx below:** ◙ **S**ingle, **Not**-painful ulcer → **Syphilis**. "*Syphilis painless, chancre*" ◙ **Multiple**, **Painful** ulcers (usually start as vesicles) ± Dysuria ± flu-like symptoms→ **HSV "Genital Herpes"** → give **Acyclovir**

	◙ Single, Painful ulcer → **Hemophilus Ducreyi** (Chancroid). ("I **Do cry**" from Pain and being Single) "**Important**: it can be multiple painful ulcers but they should have been started as single chancer i.e., single erythematous inflamed papule or patch, not vesicles like in HSV". ◙ Multiple painless growths (could be cauliflower shaped) → **Human papilloma virus 6,11 (genital warts)** **Important**: So, in **Genital herpes (HSV)** → multiple painful ulcers (started off as vesicles). ± usually have *malaise, fever, myalgia* ± painful micturition (*dysuria*). In **Hemophilus Ducreyi** → single or multiple painful ulcers (started off as an erythematous papular lesion (an inflamed patch) later turn into painful ulcers ± This chancre is usually sexually acquired from abroad: outside the UK, usually developing countries).
Key 91	**Hepatitis C workup** **√** For HCV, **initially** we do HCV antibody: this indicates if the patient has ever been exposed to HCV".

	√ If HCV antibody is positive, to confirm that he is "**currently and actively**" having hepatitis C, we do **PCR**: for HCV RNA detection". √ If HCV RNA test is negative, we redo it again after 6 months. √ After hepatitis C is being confirmed, to pick the best antiviral regimen, we do → HCV genotype test. --- **Scenario**: **A 27 YO man who is an IV drug user present with the following:** **Yellowish discoloration of eyes and skin, fatigue, loss of appetite, mild fever.** **Elevated ALT and AST (ALT>AST), Elevated bilirubin, Elevated GGT.** **What is the most appropriate NEXT "initial" investigation"?** → **HCV antibody test**.
Key 92	◙ Hx of travel to/from **North Africa** (e.g., Egypt) + Fever + Anemia + Tender Enlarged Liver + Deranged liver enzymes + Jaundice. → **Amoebiasis (Liver amoebic disease)**. Amoebiasis (caused by Entamoeba histolytica) is endemic in North Africa. It presents with anemia, fever secondary to intestinal hemorrhage and tender enlarged liver with deranged liver function due to hepatic abscess. Do not rush it and pick Malaria! (It is not in North Africa)! ---

	◙ Hx of travel to/from **North Africa** (e.g., Egypt) + Fever + Tender Enlarged Liver + Deranged liver enzymes ✚ **U**rinary symptoms (Dark urine, Hematuria, Dysuria ± ↑creatinine, urea). ± Thrombocytopenia. → **Schistosomiasis (Schistosoma Haematobium)**. ◙ Hx of travel to/from **Africa** (e.g., Sudan), west, south Africa. + Fever, Chills, Rigors ± Hepatomegaly, Hematuria (dark/red urine) → **Malaria**.
Key 93	**Which antibody will indicate a previous infection (eg, one year ago)? For example: A man had infection with cytomegalovirus a year ago. which antibody will be positive (elevated) now?** → **IgG**. **Remember**: • **IgM** → indicates recent or still active (acute) infection. It rises in the first 10 days of the infection and remains for up to 4 months. • **IgG** → Indicates a previous infection.

	IgG rises 2-3 weeks after the clinical symptoms and remains for life.
Key 94	**Example (1)**: A 71-year-old man presents to the GP with intense pain and weakness of the right side of his face for the past 4 days. He has been taking oral aciclovir for the past 4 days but there is still pain that makes him unable to sleep. There are blisters on his right ear canal. What is the most appropriate medication to add on? → Prednisolone. • This is most likely a case of **Ramsay Hunt Syndrome** (**Herpes Zoster Oticus**). • Rx → Oral antiviral (eg, aciclovir) **[+]** Corticosteroids (eg, prednisolone). √ **If lasted for > 3 months**, it is called (**post-herpetic neuralgia**). If this occurs Give → *Amitriptyline* or *Pregabalin* or *gabapentin* or *duloxetine*. Also, if pain persists for **> 2 weeks** of the infection onset, a neuropathic agent (eg, amitriptyline) is more beneficial than prednisolone. --- **Example (2)**: A 56-year-old man presents to the GP with intense pain and weakness of the right side of his face for the past 4 weeks. He has been taking oral aciclovir for the past 4 weeks but there is still pain that makes him unable to sleep.

Additional paracetamol and NSAIDs were not beneficial. There are blisters on his right ear canal. What is the most appropriate medication to add on?

→ Amitriptyline or gabapentin or pregabalin or duloxetine (neuropathic agent).

- This is most likely a case of **Ramsay Hunt Syndrome** (**Herpes Zoster Oticus**).
- Rx → Oral antiviral (eg, aciclovir) **[+]** Corticosteroids (eg, prednisolone).

Since the pain is persistent for **> 2 weeks** (4 weeks here) → a neuropathic agent is more beneficial than steroids.

Steroids are preferred to be given within the first 2 weeks on infection onset.

Important Note:

Start with oral aciclovir. Prednisolone should be started within 2 weeks of symptoms. If The rash and pain persist for **more than 2 weeks**, it is better to add on a neuropathic agent eg, amitriptyline, or gabapentin or pregabalin or duloxetine. (They would be more beneficial than prednisolone after 2 weeks of the onset of symptoms).

So:

Aciclovir → up to 2 weeks, add prednisolone → **> 2 weeks** and still pain → one of the following: *Amitriptyline* or *Pregabalin* or *gabapentin* or *duloxetine.*

"Generally, **amitriptyline** is preferred over other neuropathic agents".

Key 95	A 15-year-old boy has macules, papules and vesicles mainly on his trunk for 3 days now. There is erythema (redness) and tenderness surrounding these lesions. Some of the vesicles are secreting pinkish fluids. His body temperature is 39.3. What medication class is important in this case? Give → **Antibiotics**. • This is a case of chickenpox which is usually **self-limiting** and requires only **supportive** management (eg, paracetamol, antihistamine for itching). • However, there is **superadded bacterial infection** here (**erythema and tenderness surrounding the lesions + pinkish fluid secreted from some vesicles + high fever**). ◘ These signs indicate **superadded infection** and thus give → **Antibiotics**.
Key 96	**Important Notes on Infectious gastroenteritis** • Most cases in **children** are caused by a **virus** called **rotavirus**. • Cases in **adults** are usually caused by **norovirus** (the 'winter vomiting bug'). • It can sometimes be **bacterial** (bacterial food poisoning) eg, history of eating in a street market. • **It presents with some or all of the following:** Abdominal pain – Diarrhea (watery and or bloody) – Nausea – Vomiting – Mild Fever • These symptoms can lead to → **Dehydration** (due to diarrhea, vomiting). • If untreated, dehydration can lead to → **acute kidney injury** (Thus, high serum urea and creatinine). (Due to repeated diarrhea episodes).

	• Bacterial poisoning may cause a bloody diarrhea (based on the causative organism). • The important investigation here → **Stool microscopy, culture and sensitivity**. √ • The management in general is supportive (with fluids ie, good hydration, paracetamol, antiemetics…). • However, if stool culture shows -for example- gram **-ve bacilli** indicating (**Campylobacter Jejuni**): √ Most cases of gastroenteritis due to campylobacter jejuni are **self-limiting** with good hydration. √ However, if severe disease → **Erythromycin (first)** or **Clarithromycin** or **Azithromycin or Ciprofloxacin**.
Key 97	**Important Comparison:** • All three (**Malaria**, **Schistosomiasis Hematobium**, **Amoebiasis)** can present with: Fever, Chills, Rigors, Enlarged tender Liver, Deranged Liver functions. • Both **Malaria** and **Schistosomiasis** can have Thrombocytopenia. • Both **Malaria** and **Schistosomiasis** can have dark urine (haemoglobinuria). - Malaria → Africa. - Schistosomiasis → North Africa.

	• **Amoebiasis** is unlikely to have thrombocytopenia, and no dark urine. The prominent is Dysentery, bloody diarrhea, worldwide (anywhere).
Key 98	**For infections caused by staphylococcus aureus (even if pneumonia), a suitable treatment option is → Flucloxacillin.** What if MRSA? → Vancomycin.
Key 99	**Notes on Tuberculosis (TB) Management** • For patients with known or suspected TB → They need to be isolated in a negative pressure room. → Admit to hospital in respiratory isolation and initiate contact tracing. The full TB treatment is 6 months. After 2 weeks of isolation and TB antibiotics treatment, the patient becomes no longer infectious. Thus, he can be discharged with directly observed therapy (DOT) in place. • After discharge, the patients "especially those who are considered underserved groups such as homeless, imprisoned, drug or alcohol misusers, too ill to adhere to treatment, History of non-adherence to therapy" these people would follow a strategy called **Directly Observed Therapy** (**DOT**).

	• DOT strategy is endorsed by the (WHO) to help underserved groups adhere to the TB treatment. It requires volunteers, healthcare workers or family members to observe and record patients taking TB medications doses.
Key 100	**Understanding Sore Throat Causes: A Quick Guide** **Common Causes of Sore Throat** 1. **Group A Streptococcus (GAS)** ◦ Also known as Group A beta-haemolytic streptococcus or Streptococcus pyogenes. ◦ Commonly causes: ▪ Strep throat. ▪ Scarlet fever. ▪ Impetigo. ▪ Rheumatic fever. ◦ Symptoms include: ▪ Sore throat with fever. ▪ Difficulty swallowing. ▪ Tonsillar exudates.

2. Group B Streptococcus (GBS)

- Also known as Group B beta-haemolytic streptococcus or Streptococcus agalactiae.
- Rarely causes pharyngitis and tonsillitis.
- More commonly associated with:
  - Neonatal infections (sepsis, pneumonia, meningitis).
  - Infections in pregnant women.

3. Epstein-Barr Virus (EBV)

- Less common cause of sore throat.
- Associated symptoms:
  - Lymphadenopathy.
  - Pronounced fatigue.
  - Possible hepatosplenomegaly.

Mnemonics to Remember

- **Group A Strep (GAS)**
  - **GASP or GAS Pyro**
    - **GASP** stands for Group A Strep (Pyogenes):

1. GASP for breath when you have a severe sore throat due to difficulty swallowing.
2. GASP also stands for Group A Strep causing Pharyngitis.
3. GAS starts as a Pyro (from Greek "Pyr" meaning fire): think of fire in the throat (tonsillitis) or skin (scarlet fever).

- **Group B Strep (GBS)**
  - **GBS** stands for **G**et **B**aby **S**ick! This highlights its role in neonatal infections eg, sepsis, pneumonia, meningitis.

Scenario:

A 45-year-old man comes to the clinic with a three-day history of a sore throat, fever, and difficulty swallowing. Physical examination reveals swollen, red tonsils with white patches and exudates, and tender anterior cervical lymphadenopathy. His temperature is 38.5°C. What is the most likely causative agent?

Options:

A. Mycoplasma pneumoniae.
B. Epstein-Barr virus.
C. Candida albicans.
D. Group A Streptococcus.
E. Group B Streptococcus.

Answer → D. Group A Streptococcus.

Explanation:

• The patient's symptoms of a sore throat, fever, difficulty swallowing, and physical findings of swollen red tonsils with white patches (tonsillar exudates) and tender cervical lymph nodes are highly indicative of streptococcal pharyngitis caused by Group A Streptococcus (GAS).

• The absence of symptoms such as hepatosplenomegaly or pronounced fatigue makes Epstein-Barr virus less likely, and the typical presentation for Mycoplasma pneumoniae or Candida albicans does not fit this clinical picture.

• Group B Streptococcus is not a common cause of pharyngitis in adults.

Key 101

Chicken Pox → Varicella Zoster Virus.

♦ **Very contagious** (**Mainly** → via **Respiratory** "**Airborne**" route) **(√)**

However, Varicella zoster virus can also be transmitted via direct contact with the vesicles.

Once the vesicles are dried and crusted → no transmission.

♦ **Infectivity:** **1-2 days Before** the rash appears, until **5 days After** the rash first appeared (**becomes non-infective when the rash dries and crusts**).

♦ **Presentation:**

√ **Fever** (38-39 C).

√ **Pruritic** "itchy" Rash: **macules** → **papules** → **vesicles** → and then **dry crusts**, starting on the face and spreading mainly on chest and back.

Q) When can a child with chicken pox return to a school?

A) **After the rash and vesicles are dried and crusted** (Usually **around 5 days** after the onset of the rash).

◙ **Management "Important" √**

• Generally, in a healthy child < 12 YO → **Reassurance** + **Supportive measures** (such as paracetamol for fever and sedating antihistamines and calamine lotion for itching [Self-Limiting Disease]).

HOWEVER

• If **superimposed infection** is suspected (e.g. **discharging pustules**, redness around the vesicles, **pinkish fluid secreted** from the lesions with **High Fever**)

→ Give **Oral Antibiotics**.

Updated UK Guidelines for Varicella-Zoster Immunoglobulin (VZIG) and Aciclovir Use in Adults

1. **Varicella-Zoster Immunoglobulin (VZIG)**:

- **VZIG** is no longer the first-line prophylaxis for pregnant women exposed to chickenpox. Instead, **oral Aciclovir** is recommended for non-immune pregnant women (VZV IgG negative) following exposure.
- **VZIG** is mainly reserved for **neonates** exposed within 7 days before or after delivery, or when antivirals are contraindicated (e.g., due to absorption issues or renal toxicity).

2. **Aciclovir**:

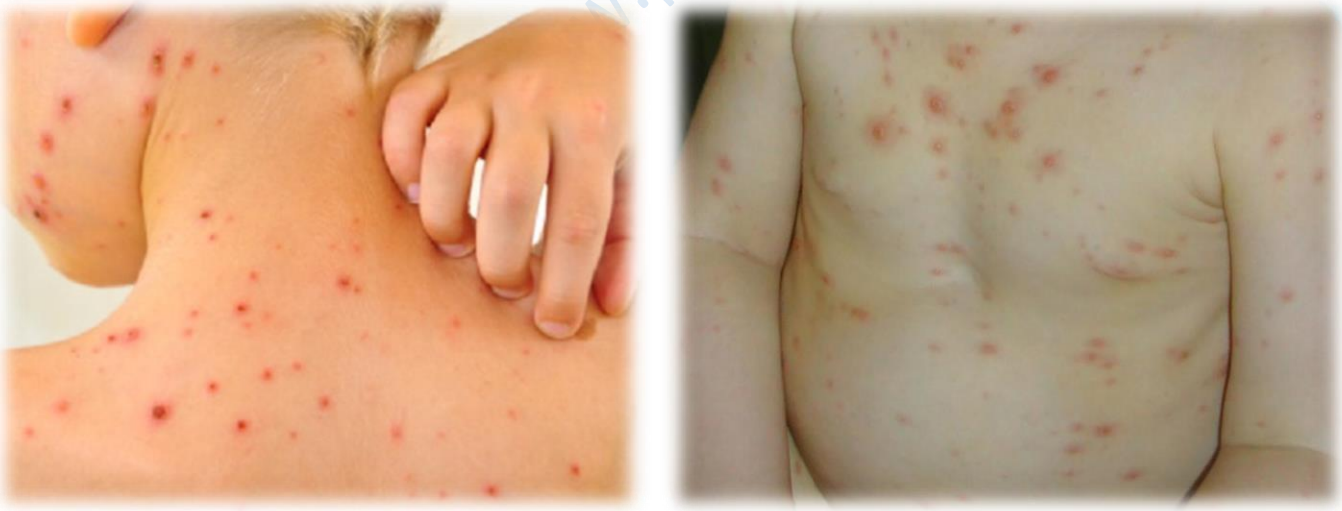
- **Oral Aciclovir** is the preferred treatment for pregnant women and immunocompromised individuals exposed to chickenpox or shingles, administered **7–14 days after exposure**. Also, for those who develop chickenpox.
- **IV Aciclovir** may be used in **severe cases** or when complications, such as pneumonia, arise. In milder cases, **oral Aciclovir** is started within **24 hours of rash onset** to reduce severity.

√ This reflects the most recent updates, with Aciclovir replacing VZIG in many cases and the use of oral or IV forms depending on the severity of the case. But most cases receive aciclovir orally unless severe or complicated.

√ Remember that in **children**, non-complicated chickenpox

→ Reassure + Supportive treatment (self-limiting).

However, if 2ry bacterial infection develops on top of chickenpox vesicles (eg, high fever, sick child, erythema, tenderness around the lesions, pinkish-yellowish pus or discharge) → *Antibiotics*.



Chicken Pox (Varicella Zoster)

Key 102

A Scenario on A Previous Topic

A 24-year-old man presents to the clinic with a three-day history of painful swelling in his right testicle. He had parotid gland swelling and fever that started one week ago, diagnosed as mumps by his GP. He has been taking paracetamol for fever and discomfort. On examination, his right testicle is swollen, tender, and slightly red. His temperature is 37.8°C, and his vital signs are normal. Current medications include only paracetamol.

Which of the following is the most appropriate next step in management?

A) Flucloxacillin.

B) Ibuprofen.

C) Amoxicillin.

D) Aciclovir.

E) Prednisolone.

The Correct Answer is → B) Ibuprofen.

Answer:

This patient is presenting with **mumps orchitis**, a known complication of mumps. Mumps is caused by a paramyxovirus, and orchitis occurs in about 20-30% of post-pubertal males with mumps. The virus itself has no specific antiviral treatment, and management is **supportive**.

- **Ibuprofen**, a nonsteroidal anti-inflammatory drug (NSAID), is the correct answer as it helps to reduce both **pain** and **inflammation**. This is the cornerstone of treating **mumps orchitis**, along with rest, supportive care, and scrotal elevation.
- **Aciclovir** is incorrect because mumps is caused by a **paramyxovirus**, not a herpesvirus, and aciclovir is ineffective against mumps.
- **Antibiotics** such as **Flucloxacillin** and **Amoxicillin** are not appropriate here since there is no evidence of bacterial infection. Antibiotics are not indicated for viral infections like mumps.
- **Corticosteroids** like **Prednisolone** are not recommended for routine use in mumps or mumps orchitis as there is no strong evidence that they improve outcomes.

Summary:

The management of mumps orchitis focuses on **pain relief** and **supportive care**. **Ibuprofen** and Paracetamol are considered the first-line choice for mumps and mumps orchitis, as they can reduce pain, fever and swelling. Antibiotics and

	antivirals are not indicated unless there is evidence of secondary bacterial infection or a different viral cause.